Economic Consequences of Accounting Standards:

Implications for the Saudi Organization for Certified

Public Accountants (SOCPA)

By

Mohammed Hamad AL-Moghaiwli

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DECLARATION

.....

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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DEDICATION

This Thesis Is Dedicated With

Deepest Love and Affection

To My Mother.

"Her love, vulnerability, wisdom, and strength
have inspired me to be the best I can be"

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ABSTRACT

This study aims at collecting empirical evidence on whether or not financial accounting standards which exist in the Kingdom of Saudi Arabia give rise to economic consequences. Awareness of the potential economic consequences of accounting standards emerged first in the United States of America in the 1970s, but increasingly has attracted a great deal of attention in many different countries over the last twenty years. The impact of accounting standards on management behaviour has been cited as one of the consequences.

Factors that affect management's attitudes in choosing among alternative accounting methods are established through the political cost theory and the contracting and agency theories. Using these theories, this study hypothesises that company size, the presence of Government debt and/or donations, the ratio of foreign employees to total employees, the presence of management compensation plans, and insider ownership provide incentives for the management of Saudi joint stock companies to adopt income-increasing or -decreasing accounting policies.

The results of the univariate and multivariate tests show that company size, ratios of foreign employees to total employees, and insider ownership are significant determinants of inventory, research and development, and Zakat policies. These findings provide empirical support for the principal hypothesis of this thesis. That is, accounting standards which exist in Saudi Arabia give rise to economic consequences and managers of companies consider these consequences when selecting accounting policies. In summary, this principal conclusion is of critical importance to the Saudi Organization for Certified Public Accountants (SOCPA), given that accounting standard setting processes are still in their early stages of development. It supports the view that SOCPA should acknowledge the possible adverse economic consequences that may result from its accounting standards decisions. In fact, the results of this study justify, in the very least, a wider and more detailed study by SOCPA of the economic effects of its potential accounting standards. The findings may also call into question the financial accounting standards which have been recently promulgated in Saudi Arabia.

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CHAPTER ONE:

INTRODUCTION

1.0 INTRODUCTION

This chapter introduces and focuses the study of economic consequences of accounting standards in the Kingdom of Saudi Arabia. The concept of 'economic consequences' is briefly outlined in section 1.1. In section 1.2. we review very briefly the literature devoted to the investigation of possible economic consequences associated with particular accounting policy choices. The development of a positive theory of accounting policy choices which will be used as a base for drawing the research hypotheses is briefly discussed in section 1.3. An outline of the study objectives and motivations is described in sections 1.4 and 1.5, respectively. Section 1.6 provides a brief introduction to the Saudi Arabian institutional environment which underscores the empirical work reported in the study. An outline of the research hypotheses and methodology is provided in sections 1.7 and 1.8, respectively. The contribution our analysis makes to an understanding of the Saudi accounting environment is identified in section 1.9. Key assumptions and limitations of the study are described in sections 1.10 and 1.11, respectively. Finally, an overview of the entire study is provided in section 1.12.

1.1 THE TERM 'ECONOMIC CONSEQUENCES'

The objective of financial reporting is to provide relevant and reliable accounting information about economic events to individuals or groups who have an interest in the activities of firms. To achieve this goal, financial accounting standards, which govern both what firms must disclose in their financial reports and also, how they must disclose their economic operations, must be neutral in their influence on those individuals or groups who use the contents of such reports as inputs to their decision making processes. However, this condition has long been questioned on the ground that particular proposals for financial accounting standards, or existing standards, confer benefits on some users of financial statements whilst penalising or imposing costs on others. The term 'economic consequences' has been used in the accounting literature to describe this hypothesis.

Since the early 1970s and up to the present, the issue of economic consequences has placed a heavy burden on accounting standards setting bodies such as the FASB in the USA and the ASC in the UK, among others. One view on how accounting regulators should respond to this issue sees the establishment of an accounting standard as being fundamentally a political or a social decision, and thus argues for explicit consideration of economic

consequences in the accounting policy formulation process. For example Committe (1990, p. 46) criticises the FASB and writes:

> **Information is valued because it is useful, and accounting information is useful because of its economic and societal consequences. To make rules without knowing of, caring about, and taking into consideration their consequences is not responsible rulemaking of any kind. A rulemaking organization cannot absolve itself of responsibility by hiding under an umbrella of alleged neutrality supported by a claim of technical expertise. A claim of expertise ought to increase rather than decrease a rulemaking's responsibility for the consequences of its work.**

1.2 ECONOMIC CONSEQUENCES: THE EVIDENCE

In parallel with this theoretical criticism a substantial number of empirical research studies emerged which focused on linking accounting standards to changes in the decision-making behaviour of the users of financial statements. However, almost all applied economic consequences studies to date have concentrated on the impact of particular alternative accounting policies on managers' and equity investors' decisions. In general, these studies can chronologically be classified into three broad categories; income smoothing studies, stock market studies, and positive accounting studies.

The major thrust of the income smoothing literature is to explain and predict managers' choice of accounting standards by analysing the economic motives that managers might have in choosing such standards. Research of

this type has focused on the hypothesis that managers may be motivated to choose accounting policies which smooth reported income and which smooth the rate of growth in income, perhaps because this would increase their job security, the level and growth of their income and the size of their companies [see, for example, Gordon (1964); Gordon, Horwitz and Meyers (1966); Dopuch and Drake (1966); Archibald (1967); Copeland (1968); Copeland and Licastro (1968); Cushing (1969); Dascher and Malcolm (1970); White (1970); Barefield and Comisky (1972); Beidleman (1973)].

Underlying the income smoothing hypothesis research are the common beliefs that: (1) managers are rational expected utility of wealth maximisers, (2) accounting reports are the only source of information available to investors, and (3) stock markets can be 'fooled' by changes in accounting policies. However, the last two propositions of the income smoothing hypothesis have subsequently undermined by studies of investors' reactions to accounting information based on managers' voluntary choices of accounting policies. The empirical evidence developed by, for example, Ball and Brown (1968), Brown and Kennelly (1972), Archibald (1972), Ball (1972), Kaplan and Roll (1972), Beaver and Dukes (1973), Foster (1975 and 1977), Sunder (1975), Cassidy (1976), Hong, Kaplan and Mandelker (1978), and Patell and Wolfson (1981), indicates that investors:

(1) do use accounting information, but much of the contents of accounting reports reaches stock markets through alternative sources, and (2) are able to distinguish between changes in accounting policies which are purely 'cosmetic' and changes which reflect real economic events, suggesting that managers are not able to mislead investors using opportunistically chosen accounting policies. This empirical stock-based evidence, hence, concludes that financial accounting standards are not likely to alter the decisions of investors; i.e. they have no adverse economic consequences.

However, this empirical stock-based conclusion has left accounting researchers with no explanations for a number of fundamental questions concerning why managers of companies: (1) are concerned with which accounting methods are used in preparing their financial statements, and (2) lobby for or against certain proposed accounting standards. Recent studies have incorporated into accounting the principles of the economic theory of regulation and the contracting and agency theories, in an attempt to answer these two questions. They have generally concluded that managers' choices of accounting policies differ according to their firms' size, debt/equity ratio, and managerial compensation plan [see, for example, Holthausen and Leftwich (1983); Watts and Zimmerman (1986 and 1990); Christie (1990)].

The arguments from which these simple hypotheses have been derived are known as the positive accounting theory.

1.3 THE POSITIVE ACCOUNTING THEORY

The positive theory of accounting policy choice is generally drawn from a well-known paper in which Jensen (1976, p. 11) argues:

> **... research in accounting has been (with one or two notable exceptions) unscientific... because the focus of this research has been overwhelmingly normative and definitional.**

Jensen (1976, p. 13) then called for:

> **... the development of a positive theory of accounting which will explain why accounting is what it is, why accountants do what they do, and what effects these phenomena have on people and resource utilization.**

Like the income smoothing hypothesis, the positive accounting theory is based on the proposition that managers adopt accounting policies which best serve their self-interest [Gordon (1964, p. 261); Watts and Zimmerman (1978, p. 113)]. However, the main focus of researchers in positive accounting rests on determining how accounting policies affect cash flows and, hence management's utility functions. The economic theory of regulation and the contracting and agency theories have been utilised to answer this question. A basic assumption of those theories is that contracting and monitoring costs associated with companies' political processes, and

with companies' contractual agreements, such as debt and compensation contracts, are nonzero. This proposition provides an opportunity to hypothesise that the choice of certain accounting policies by managers is aimed at increasing either the company's or the managers' future cash flows.

The three most tested hypotheses derived from the positive accounting theory literature are the political costs hypothesis, the bonus plan hypothesis, and the debt/equity hypothesis. The political costs hypothesis predicts that if a company is in danger of suffering expropriation of resources through the political process its managers will have incentives to adopt income-decreasing accounting policies in order to avoid these political costs and the subsequent negative wealth transfers. It has been argued that a company is in danger of suffering political costs if it is large, has high systematic risk, is highly capital intensive or is operating in a highly concentrated industry.

The bonus plan hypothesis predicts that managers who are rewarded by accounting-based bonus schemes will have incentives to adopt income-increasing accounting policies so as to maximise their compensation, i.e. an increase in the present value of a company's reported income increases the present value of its management compensation.

The debt/equity hypothesis predicts that the higher the proportion of debt to equity the more likely it is that managers will select income-increasing accounting policies in order to reduce the probability of violating restrictive covenants in their debt contracts.

1.4 OBJECTIVES OF THE STUDY

The principal question to be investigated in this study is **whether or not accounting standards which exist in the Kingdom of Saudi Arabia give rise to economic consequences.** Our examination of the theoretical economic consequences literature, which is outlined in chapter two, reveals that the imputation of economic consequences comes either from the impact of financial accounting reports on the users' decision-making behaviour, or from the existence of a company's contractual relationships. Therefore, one direct way to answer the general research question can be through examining the behaviour of Saudi corporate managers who have the vital role of choosing accounting policies adopted by their companies. Following the positive accounting theory ideas, our research question will therefore be investigated through examining the hypothesis that **managers of Saudi companies use economic criteria in choosing their accounting policies**. If our empirical results support this hypothesis, the argument that accounting standards which exist in Saudi Arabia give rise to economic consequences

would be justified. A related objective is that if managers of Saudi companies do use economic criteria in choosing their accounting procedures, this study will also have the potential to obtain an empirical insight into the factors that are most likely to influence Saudi corporate managers' accounting policy choices.

1.5 MOTIVATIONS FOR THE STUDY

There are at least two motivations for the study. The first emerges from the potential important implication of the economic consequences issue for the accounting policymaking body in Saudi Arabia, given that:

(1). The economic consequences issue has been the object of controversy in the accounting literature since the late 1970s and up to the present;

(2). the economic consequences literature is huge and growing at an exponential rate, but relatively few researchers have given explicit consideration to the implication of this issue for management behaviour in less developed countries; and

(3). we are not aware of any empirical study that has explicitly attempted to investigate economic consequences of financial accounting policies which are used by Saudi companies.

The second motivation is to shed some light on the validity of the positive accounting theory which is described by Watts and Zimmerman (1986, p14) as being useful because:

> **... it can provide those who must make decisions on accounting policy (corporate managers, public accountants, loan officers, investors, financial analysts, regulators) with predictions of, and explanations for, the consequences of their decisions.**

1.6 SAUDI ARABIAN ENVIRONMENT

A company's accounting policy decisions are generally related to its explicit and implicit political and contracting environment. Therefore, in order to investigate the general research question, it is necessary to have a good understanding of the environment which underscores the empirical analysis reported in the study. This section summaries Saudi Arabian socio/economic environment in terms of six basic points:

1. The Kingdom of Saudi Arabia is an Islamic monarchy created by the King Abd al-Aziz Bin Abd al-Rahman al-Saud in 1932. Its constitution, which is based on *Al-Qura'n Al-Karim*[1] and *Al-Sunna Al-Sharifa*[2], provides that "rule passes to the sons of the founding King Abd al-Aziz Bin Abd al-Rahman al-Faisal al-Saud, and to their children's children"

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[1] **It is the collected revelations of God to Prophet Mohammed, peace be upon him.**

[2] **It is the sayings and actions of Prophet Mohammed, peace be upon him.**

(Saudi Arabian Basic Law of Government, 1992, chapter two, article 5). The Council of Ministers, which holds both legislative and executive powers in the Kingdom, is presided over by the present ruler of Saudi Arabia, King Fahd. Although there are no political parties, unions or franchises in Saudi Arabia, members of a number of governmental departments are now exerting significant influence over the formulation of the Kingdom's political, legal and economic policies.

2. The present economy of Saudi Arabia has been the outcome of a series of five-year development plans, the last of which is the 1995-2000 development plan. This five-year development plan officially commits the Government to four general economic goals: (1) a balanced budget, (2) further privatisation, (3) an end to the subsidised provision of Saudi industry and public utilities, and (4) the replacement of foreign labour by Saudi workers. To achieve these goals, the Saudi Government has identified the following guiding principles: (1) expand privatisation by selling state-held shares, reducing monopoly activities and enhancing competition; (2) rationalise subsidies provided by the Government for many services and commodities; and (3) continue a 'Saudization' of the labour force by encouraging companies operating in the Saudi private sector to replace their foreign workers with Saudi citizens. The basic

message of this plan is that the Government, having made massive investments in establishing modern infrastructure and providing an extensive package of financial, fiscal, tariff and other incentives, now wants the Saudi private sector to become the driving force behind the economy.

3. In December 1995, there were 94 Saudi joint stock companies, of which 69 were traded on the Saudi stock market. These publicly traded companies consisted of 11 banks, 10 electrical companies, 9 agricultural companies, 23 industrial companies and 16 services companies. Their most striking characteristics include the following: (1) most of their external finance has been provided by the Government in the form of medium- and long-term interest free loans and donations; (2) as of December 1995, about one-third of their shares was state-held; and (3) most of their managerial staff are non-Saudis.
4. The Saudi stock market is in its infancy. Since 1990 Saudi companies' shares have been traded through some domestic banks which are electronically linked with the central computer at the Saudi Arabian Monetary Agency (SAMA). This share trading system has been severely criticised for its operational inefficiency and is considered to be one

major factor contributing to the 'irrational expectations' of the Saudi stock market.

5. The Saudi labour market is also in its early stages of development. At the end of 1994 the Saudi workforce, as based on US sources, was estimated to be 2.7 million people. Under the 1995-2000 Saudi development plan, the Saudi workforce is targeted to expand at an annual rate of 4%. However, the present Saudi labour market suffers from the absence of official information regarding, for example, job opportunities and qualifications.

6. The current legal and institutional framework surrounding the Saudi accounting and auditing profession has been the result of: (1) the 1950 Income Tax and Zakat Law, (2) the 1965 Companies Act, (3) the 1986 Ministerial decision concerning "auditing standards" and "Statement of Financial Accounting Objectives, Concepts and General Standard of Presentation and Disclosure", and (4) the Certified Public Accountants (CPA) Regulations which were introduced in 1992 with the objective of establishing the Saudi Organization for Certified Public Accountants (SOCPA). One principal objective of SOCPA is to set accounting and auditing standards. Since its inception, SOCPA has issued six standards; (1) Foreign Currency Translation, (2) Inventories, (3) Cash Flow

Statements, (4) Related Party Disclosures, (5) Preliminary & Pre-operating Expenses, and (6) Auditing Electronic Data Processing (EDP) Activities. However, apart from these standards, which became mandatory in 1998, SOCPA requires the financial statements of Saudi joint stock companies to be prepared in accordance with the 1986 "General Standard of Presentation and Disclosure" and USA Generally Accepted Accounting Principles (GAAP).

1.7 RESEARCH HYPOTHESES

The theoretical and empirical foundations for this study are mainly provided by the USA literature on the economic consequences of accounting standards and on positive accounting theory. Almost all applied economic consequences studies to date have used U.S. data and are normally based on firm size, compensation plans and leverage as the three factors that are most likely to affect management's attitudes towards alternative accounting procedures (Watts and Zimmerman, 1986 and 1990). However, as the political and regulatory environment in which Saudi companies operate and the financial contracts (debt and compensation contracts) into which they enter are different from that of most companies in the United States, it is necessary to adapt the investigation to take account of these differences.

On the political and regulatory side, we argue that the 1995-2000 Saudi development plan provides incentives for managers of some Saudi companies to adopt income-decreasing accounting policies. More specifically, we hypothesise that if a company has large total assets, Government debt and/or donations in its capital structure, and higher ratios of foreign employees to total employees, its managers will have incentives to use income-decreasing accounting policies in order to avoid the probability of suffering negative wealth transfers or political costs which will be associated with the implementation of the 1995-2000 Saudi development plan (see section 5.1 for a description of how the 1995-2000 Saudi development plan would subject Saudi companies to pressures from the political process).

As in the case of USA companies, management compensation contracts, which are tied formally to reported income, are employed by a large number of Saudi companies. The existence of these compensation contracts and the weak disciplinary role of the Saudi stock and managerial labour markets, motivates us to generate another set of hypotheses; the bonus plan hypothesis and the insider ownership hypothesis (see section 5.2.1 for a description of the theoretical reasoning underlying these hypotheses)

On the other hand, unlike USA companies, almost all Saudi joint stock companies have received most of their external finance from the Government. Therefore, it does not seem that managers' accounting policy choices are influenced by restrictive covenants in debt contracts as has been hypothesised in the USA literature (see section 5.2.2 for a description of this argument).

1.8 RESEARCH METHODOLOGY

The sample for this study is drawn from the 69 Saudi joint stock companies which were publicly traded at the end of 1995. Of these 69 companies, however, 21 companies which operate in the banking and electrical sectors are excluded because they are regulated by special unified accounting rules. Hence, the data on which the study is based are taken from the remaining 48 publicly traded companies for which the 1995 annual reports are available and which also disclose their accounting policy choices.

The research methodology adopted consists of two phases involving two kinds of tests; univariate tests, and multivariate tests. These tests are discussed in detail in chapter six (section 6.2).

1.9 EXPECTED CONTRIBUTION TO KNOWLEDGE

The contribution our study makes to an understanding of the Saudi accounting environment is as follows:

1. This study aims to examine the economic consequences of financial accounting standards which exist in the Kingdom of Saudi Arabia; thus it is of high interest to the Saudi accounting profession, where standard setting processes are still in the early stages of development. It can assist the Saudi Organization for Certified Public Accountants (SOCPA) in making decisions regarding new accounting standards, or in assessing the actual consequences of standards in comparison with their intended or predicted effects. More specifically, the results of this study would justify, in the very least, a wider and more detailed study by SOCPA of the effects of their accounting standards decisions.
2. Given that the existence (or absence) of economic consequences in Saudi Arabia will be investigated by examining the hypothesis of whether or not managers of Saudi companies use economic criteria in choosing their accounting policies, this study makes at least three contributions to the development of the current positive accounting literature. First, since almost all accounting policy choice studies have been conducted using USA data, this study will contribute to the fund of knowledge by

extending accounting policy choice research to Saudi data. Second, focusing on Saudi companies gives an opportunity to test the robustness of positive accounting hypotheses outside the United States, where the political and contracting environment and the market in which accounting information is used may be very different[3]. Last, this study introduces new environment-oriented hypotheses to the positive accounting literature.

3. This study is the first economic consequences study to adopt an in-depth empirical analysis of the Saudi private sector.

1.10 KEY ASSUMPTIONS

Explicit assumptions made in this study are as follows:

1. It is assumed that the 1995-2000 development plan is a politically sensitive subject in Saudi Arabia and that financial accounting information reported by Saudi joint stock companies affects their exposure to political influences.
2. As is the case with economic consequences studies generally, it is assumed that the participants in the political process who might propose

[3] **Tawfik and Kadous (1991) are the first to empirically test the validity of applying the positive accounting theory hypotheses in Saudi Arabia. They studied the effect of firm-specific variables as well as environmental variables on the selection of both single policy choice and portfolio strategy choice by management in Saudi Arabia. Section 3.3.2 provides a detailed review of this study.**

negative wealth transfers will not adjust for the managers' accounting policy choices unless the benefits from doing so exceed the costs. Also, it is assumed that either the compensation plans do not specify the accounting policy set *ex-ante* or that the compensation committees who typically administer such plans do not adjust, *ex-post*, for changes in accounting policies.

3. This study assumes that managers of Saudi companies trade-off the expected impact of the economic influences of political costs and compensation when selecting an accounting policy. This is because the selection of a particular accounting policy often has opposing effects on political variables as against compensation variables. Thus, it is assumed that managers will choose the accounting policies that best balances these conflicting influences.

1.11 LIMITATIONS

Limitations of this study include the following:

1. As already noted, this study collects empirical evidence on the existence of economic consequences and therefore does not deal with the analysis of how such economic consequences, if there are any, can be incorporated into the process of setting or choosing accounting standards.

2. This study does not attempt to develop prescriptions for the improvement of external reporting practices in Saudi Arabia nor does it deal with normative accounting issues.
3. Since a rigorous link between the theory and the empirical analysis has not been established, our empirical results may be limited by the traditional econometric problems related to measurement errors and omitted variables.
4. Since this study is based on the politically sensitive effect of the 1995-2000 Saudi development plan, this limits our conclusions to the Saudi environment and to the 1995-2000 period.
5. Since the sample used in this study is based on Saudi joint stock companies, our results may not be generalised to other business environments.

1.12 AN OVERVIEW

The remainder of this study is constructed as follows:

Chapter Two describes the theoretical foundations of the study. Chapter Three explores the empirical foundations of the study. Chapter Four sets the scene for the study by describing the recent status of Saudi Arabia's political, legal, economic and accounting environment. The research hypotheses are established in Chapter Five and the research methodology is

described in Chapter Six. The summary statistics for each independent variable together with a discussion of the univariate and multivariate test results are reported in Chapter Seven. Chapter Eight contains conclusions on the major findings of the study and areas for future research.

CHAPTER TWO:

ECONOMIC CONSEQUENCES: THE CONCEPT

2.0 INTRODUCTION

This chapter describes the theoretical foundations of the study by reviewing the economic consequences literature. The review begins with an outline of the most commonly identified approaches to the formulation of accounting policy. This review is fairly brief and intended to give the broad background information which is essential to an understanding of how the economic consequences literature has emerged. The second section explores the economic consequences literature under four headings; namely, the reasons for interest in economic consequences issues, definitions of economic consequences, classification of economic consequences, and the issue of how financial accounting standards bodies ought to respond to the economic consequences literature. The third section looks at the development of what is called 'a positive theory of the determination of accounting standards' in the USA literature, which incorporates into accounting the contracting and monitoring costs in the political and contracting processes, in order to explain and predict the effects of various accounting standards on the behaviour of different decision-makers, particularly corporate managers.

2.1 HOW SHOULD ACCOUNTING POLICY BE DEVELOPED?

Accounting policy, like all policy decisions, is a process of choice among alternatives. In this context, the major question that arises is: how should accounting policy be developed? This topic has received much attention during the last 50 years and several approaches to it have been suggested. The more commonly and recently identified approaches to accounting policy development include: (1) the technical framework approach, (2) the economic consequences approach, and (3) the critical approach.

The technical approach focuses on the decision-usefulness of accounting information. Its basic idea is based on the premise that what information financial reporting should provide depends on the needs of those for whom the information is intended which, in turn, is determined by their economic activities and decisions. The FASB Conceptual Framework Project, for example, serves as a good example of this approach. The FASB Statement No. 1, *Objectives of Financial Reporting by Business Enterprises*, describes the environmental context where economic decisions are to be made to identify who are potential users of financial reports. The primary and secondary qualitative characteristics identified in the FASB Statement No. 2, *Qualitative Characteristics of Accounting Information*,

and the guidance suggested by the FASB Statement No. 5, *Recognition and Measurement in Financial Statements of Business Enterprises*, summarise the criteria to be used when accounting policy choices are made. These criteria determine what economic objects and events are likely to be useful to users, and how and when these objects and events should be described and measured. The ten basic elements identified in the FASB Statement No. 6[4], *Elements of Financial Statements*, classify the identified economic objects and events of interest to users. Supporters of the technical approach argue that accounting policy should be established and evaluated within this conceptual framework if accounting standard setters want to justify their accounting policy choices [see, for example, Gellein (1978); Solomons (1978 and 1986)].

Although the decision-usefulness approach may be used to justify some technical aspects of accounting standards, it has been criticised for providing little insight in explaining: (1) the political forces that influence the development of accounting standards and practice, and (2) the undesirable social-welfare effects associated with the use of accounting reports. For example, May and Sundem (1976, p. 750) contend that:

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[4] The FASB Statement No. 6 replaces Statement of Financial Accounting Concepts No. 3 and extends its scope to include not-for-profit organisations.

> **In practice as well as in theory, the social welfare impact of accounting reports apparently is recognized. Therefore, it is no surprise that the [Financial Accounting Standards Board] is a political body and, consequently, that the process of selecting an acceptable accounting alternative is a political process. If the social welfare impact of accounting policy decisions were ignored, the basis for the existence of a regulatory body would disappear. Therefore, the FASB must consider explicitly political (i.e. social welfare) aspects as well as accounting theory and research in its decisions.**

Because of these fundamental limitations, the economic consequences approach has been suggested as an expansion of the decision-usefulness approach and is seen as an alternative approach for understanding and valuing the role of financial accounting reports in a broader societal context [see, for example, Gerboth (1973); Horngren (1973); May and Sundem (1976); Rappaport (1977); Taylor and Turley (1986); Whittred and Zimmer (1988); Committe (1990); Whittred, Zimmer and Taylor (1996); Sunder (1997)]. Supporters of this approach base their arguments on the fact that accounting standards affect the decision-making behaviour of prepares and users of accounting reports, and as a consequence, affect: (1) the distribution of wealth among individuals, and (2) the allocation of resources in an economy. In this view, an important implication is that accounting standards are not always neutral in that they impose benefits on some groups in society to the detriment of others. The theoretical arguments underlying the economic consequences approach will thus be discussed in detail in the following sections.

Closely related to the economic consequences approach is the critical perspectives theory of accounting policy. This approach has recently emerged as an expansion of the decision-usefulness approach. It, like the economic consequences approach, recognises that accounting is influenced by the social and political environment in which it is practised (Hunt and Hongler, 1990, p. 55). The critical approach, however, goes further and views accounting as a means of aiding and legitimising the present social, economic and political arrangements as well as the ideology which underpins it [see, for example, Tinker, Lehman and Neimark (1980); Tinker, Merino and Neimark (1982); Steffy and Grimes (1986)]. In this context, supporters[5] of this approach argue that "the themes of power, class, conflict, politics and ideology" in a society should be recognised and incorporated into the field of accounting (Steffy and Grimes, 1986, p. 322).

2.2 ECONOMIC CONSEQUENCES: THE CONCEPT

> **All decisions regarding accounting policy should have economic consequences. If there were no economic consequences, there**

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[5] The critical accounting research has increasingly attracted much attention [see, e.g., Burchell, Clubb, Hopwood and Hughes (1980); Cooper (1980 and 1984); Tinker (1980 and 1985);Tinker, Lehman and Neimark (1980); Tinker, Merino and Neimark (1982); Hopwood (1983 and 1987); Cooper and Sherer (1984); Neimark and Tinker (1986); Chua (1986a and b); Steffy and Grimes (1986); Cooper and Hopper (1987); Laughlin (1987); Hopper, Storey and Willmott (1987); Lehman and Tinker (1987); Williams (1987); Hines (1988 and 1989a); Hunt and Hongler (1990); Robson (1991, 1992); Chua and Degeling (1993); Laughlin (1995); Lodh and Gaffikin (1997); Gallhofer and Haslam (1997); Cooper (1997)]. However, this type of research is still in its early stages of development and what it is ultimately about seems to be an unresolved issue (Lodh and Gaffikin, 1997, p. 436).

> **would be no reason for the policy decision** (Hendriksen, 1982, p. 121).

As the above quotation implies, accounting standard decisions are important because of their potential economic consequences. However, some consequences are undesirable. The issue of 'adverse economic consequences' (of financial accounting standards) emerged first in the United States in the 1970s (Zeff, 1978, p. 56), but increasingly has attracted a great deal of attention, not only in the United States, but also in many different countries (Taylor and Turley, 1986, p. 90). This section considers the economic consequences literature under four headings:

1. The reasons for interest in the economic consequences of financial accounting standards;
2. definitions of economic consequences;
3. classification of economic consequences; and
4. the issue of how financial accounting regulators should respond to the economic consequences implied by accounting standards.

2.2.1 The Importance of The Economic Consequences Issue

Why the economic consequences issue "has become the central contemporary issue in accounting" (AAA, 1978, p. 4), can be discussed from a number of standpoints, but perhaps it may best be seen from the

standpoint of the impact of accounting standards on social-welfare. From a social welfare viewpoint, the objective of financial reports is to provide relevant and reliable accounting information about economic events to the governmental departments which are responsible for achieving national goals, and to other individuals or groups who have a direct interest in the activities of firms. To achieve this goal, financial accounting standards, which govern both what firms must disclose in their financial reports and also, how they must disclose their economic operations, must be neutral in that such standards should lead to desirable effects (or should, as least, not be responsible for undesirable effects) on the interests of both the national economy and individuals or groups who use the contents of financial reports as inputs to their decision making processes. However, this criterion has been questioned on a number of grounds:

1. It has been demonstrated that accounting standards do have an adverse effect on the achievement of national goals. An example occurred in the USA in 1978, when the FASB issued Statement No. 19, "*Financial Accounting and Reporting by Oil and Gas Producing Companies*". This statement requires that oil and gas exploration costs must be accounted for under the successful-efforts method. Before this standard, oil and gas companies voluntarily adopted either the successful-efforts method or the

full-cost method, in their primary financial statements. Basically, the successful-efforts method expenses the oil and gas exploration costs of unsuccessful wells (dry wells) and capitalises only the exploration costs of successful wells (wet wells). On the other hand, the full-cost method capitalises the oil and gas exploration costs of both successful and unsuccessful wells (wet and dry wells) and amortises the costs against future revenues produced from successful wells (wet wells). From a national objectives point of view, however, it was claimed that this mandated switch from the full-cost method to the successful-efforts method, would have adverse effects on the ability of exploration-oriented companies to raise capital and expand exploration activities and compete with other companies. For this reason, the Departments of Justice and Energy, the Federal Trade Commission, and exploration-oriented oil and gas companies applied great pressure on the Securities and Exchange Commission (SEC) to overrule FASB Statement No. 19 and permit both of the two methods. In the USA numerous other examples can be cited. Cases in point include the investment tax credit (APB Opinion No. 2, 1961), research and development costs (FASB Statement No. 2, 1974), accounting for contingencies (FASB Statement No. 5, 1975), foreign currency translation (FASB Statement No. 8, 1975), and inflation

accounting. The UK experience in the formulation of accounting standards also provides further support for the view that accounting standards can impede national objectives. For example, SSAP 11, *Accounting for Deferred Taxation*, and SSAP 13, *Accounting for Research and Development Costs*, were both amended because they were thought to be incompatible with national objectives [Hope and Gray (1982); Sutton (1984); Zeff (1988)]. In this regard, Zeff (1988, pp. 21-22) comments on SSAP 11:

> **In 1978 the Accounting Standards Committee responded to pressures from industry, banking and government to reject "comprehensive" deferred tax accounting in favour of "partial" deferred tax accounting... Nor was the Government pleased with SSAP 11. Since industry had been accorded sizeable tax relief both for depreciable assets and stock in trade, Government was not comfortable with the prospect of the same companies issuing published accounts in which large notional tax expenses would be shown, as if the tax relief had never been given.**

2. Investors are considered to be the most important users of financial statements, and hence decisions regarding accounting policies are intended to improve the information available to them. This improvement in information should assist investors to achieve more efficient stock portfolios and, through the market mechanism, affect the allocation of resources in the economy. However, a number of studies have presented evidence which shows that changes in accounting policies which create different accounting numbers, often confuse investors and cause security

prices to react inefficiently, reflecting the changes in accounting numbers rather than the changes in the economic characteristics of the companies concerned. The result is, therefore, an inefficient allocation of society's resources. For example, Dyckman and Smith (1979), Collins and Dent (1979), Lev (1979), and Larcker and Revsine (1983) conducted tests to see if the issuance of the exposure draft preceding the issue of FASB Statement No. 19 had an adverse effect on the returns of USA oil and gas companies using the full-cost method. These studies have generally concluded that there was evidence of a market reaction[6]. Moreover, when the SEC later allowed the full-cost method to be used (FASB Statement No. 25), Smith (1981) and Collins, Rozeff, and Salatka (1982) observed a reversal of the earlier adverse impact. Lobo and Song (1989) also examined the controversial issue of the effect of FASB Statement No. 33, "*Financial Reporting and Changing Prices*". Their study was conducted at the aggregate level of the security market and reported evidence of stock price reaction to releases of information on current costs.

3. In addition to the effect of changes in accounting policies on the decisions of investors, many other types of decisions are affected by accounting

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[6] These studies, among others, provide conflicting results to the Efficient Markets Hypothesis (EMH) and the Capital Assets Pricing Model (CAPM), which assert that changes in accounting policies, with no known cash flow consequences, should have no effect on stock prices.

policies. The effects of accounting procedures on a company's contractual relationships may be deemed to be one important area. These effects result from the fact that the contractual relationships between a company's shareholders and management and those between a company's debtholders and its shareholders are frequently expressed in terms of accounting numbers or financial statement ratios. Changes in the accounting policies for calculating these numbers or ratios may effectively alter the wealth or cash flows of the parties to these contracts. We discuss this issue in more detail in section 2.3.3, but at this stage it may be noted that evidence on these effects suggests that negative economic consequences have resulted from certain accounting standards. Such evidence is discussed at length in chapter three.

4. There is another ground for considering the economic consequences of accounting standards. Solomons (1986, p. 222) notes that: "public utility pricing may be affected by the picture of profitability a regulatory commission sees when it examines a utility's financial statements". This hypothesis is supported by the empirical evidence. For example, when the rate-of-return regulation was first established in the United States, Jarrell (1979) found that electric utilities used certain income-decreasing accounting policies in order to reduce the reported rate of return and

hence improve the rationale for a rise in electricity prices. McInnes (1990) demonstrated that such a situation also exists in the UK gas industry. In his longitudinal study, McInnes investigated the accounting policy changes made for the UK gas industry from 1969 to 1974 and found that certain accounting policies were used in order to enhance the "justifications for increases in gas prices" (McInnes, 1990, p. 315).

In sum, interest in economic consequences issue may be explained by the fact that accounting policy decisions have important implications for the achievement of national goals, capital market efficiency, contractual relationships, and public utility pricing.

2.2.2 Definitions of Economic Consequences

The term 'economic consequences' may be defined in a number of ways. Zeff (1978, p. 56), who was one of the first to specifically define the term, offers the following definition:

> **By 'economic consequences' is meant the impact of accounting reports on the decision-making behavior of business, government, unions, investors and creditors. It is argued that the resulting behavior of these individuals and groups could be detrimental to the interests of other affected parties.**

This definition focuses on the effect of accounting data presented in external financial reports on the way users of such reports view the economic position and prospects of the companies with which they deal, and how such

a view affects their decision-making behaviour. For example, the adoption of the last-in, first out (LIFO) inventory method during an inflationary period probably results in changes in the investors' evaluation of the risk or returns associated with a company's equity securities. Similarly, the reporting of current values during an inflationary period, which generally leads to a lower reported net profit, may influence the government's willingness to subject the company to certain tax and other regulations. It may also affect the banks' willingness to enter into credit arrangements with the company, and potential employees' preferences for working for the company. Furthermore, it is argued that the accounting information contained in financial reports may also influence the decisions-making behaviour of the preparers of such reports. Prakash and Rappaport (1977, p. 30) offer the term 'information inductance' to describe this feedback effect: "We use the term *'information inductance'* ... to refer to the complex process through which the behavior of an information sender is influenced by the information he is required to communicate". The FASB Statement No. 5, *Accounting for Contingencies*, serves as a good example of 'information inductance'. This standard prohibits the so-called self-insurance reserves and requires loss contingencies to be charged to income. It was claimed that these requirements have forced some USA insurance companies to purchase

insurance policies which were not in the best interests of their shareholders (Solomons, 1978, p. 145).

Whittred, Zimmer and Taylor (1996) look at economic consequences from a different angle. They (1996, p. 16) offer the following implicit definition:

> **Our discussion serves to illustrate two points:**
> **(1) Property rights/sharing rules in many private contracts are defined over accounting numbers.**
> **(2) Changes in the rules/standards for calculating these numbers can effectively redistribute wealth between the parties to the contracts. These wealth transfers, the economic consequences of accounting method choice, are ultimately the source of the incentive to possess financial rule-making authority, or at least to influence the deliberations of rule-making bodies.**

Here, Whittred, Zimmer and Taylor define the term 'economic consequences' by reference to the contractual relationships between shareholders and management and those between debtholders and shareholders. As we see in section 2.3.3, contracts between shareholders and management often include bonus plans or stock option plans designed to encourage managers to act in the best interests of shareholders. These plans are frequently expressed in terms of accounting numbers, such as corporate net profit before extraordinary gains and losses. Similarly, contracts between shareholders and debtholders often contain restrictive covenants designed to reduce the ability of shareholders to expropriate the wealth of debtholders. These restrictive covenants are frequently expressed in terms of financial

statement ratios, such as the debt/equity ratio. Changes in the accounting policies for calculating these numbers or ratios may effectively alter the wealth or cash flows of the parties to these contracts.

Holthausen and Leftwich (1983, p. 77) provide a definition which appears to embrace the two definitions of economic consequences cited above:

> **Accounting choices have economic consequences if changes in the rules used to calculate accounting numbers alter the distribution of a firm's cash flows, or the wealth of parties who use those numbers for contracting and decision making.**

The words 'contracting and decision making' appear to cover both the contractual relationships between shareholders and other parties and the effect of accounting data published in financial statements on the behaviour of decision-makers who use such statements.

2.2.3 Classification of Economic Consequences

Economic consequences can be classified according to their causes or their outcomes. The first type of classification was given by Benston and Krasney (1978) who argue that economic consequences arise because of two effects: direct and indirect. Direct effects are defined as "those that clearly and rapidly affect the transfer of resources among individuals", and indirect effects are defined as "those that change the way people view the economic status and progress of an enterprise and, as a consequence, affect

their behavior toward the enterprise" (Benston and Krasney, 1978, pp. 162-163). The definition of the direct effects appears to refer to those economic consequences issues that arise because of the contractual relationships between a company's shareholders and some other party. This is clearly identified when Benston and Krasney (1978, pp. 162-163) state:

> **Other examples are the rates allowed to utilities by regulatory agencies in the absence of specified regulatory accounting requirements, and effects on existing contracts when a change of accounting rules impinges a restrictive covenant.**

The definition of the indirect effects explicitly refers to those economic consequences issues that arise from decisions taken by users of financial statements in response to the accounting information provided.

Blake (1992) also used this type of classification- the causes of economic consequences. He classified economic consequences issues into three categories: those that arise because of (1) compliance/analysis costs, (2) the mechanistic application of regulation or contracts, and (3) decisions taken by users of financial statements. He argues that because the costs of changes in accounting disclosure regulations are largely borne by companies and may positively or negatively affect analysts, these costs give rise to economic consequences. He (1992, p. 307) also argues that economic consequences issues may arise because the numbers reported in the accounts of a company affect its regulatory and contractual mechanism, and "because

of decisions taken by some readers of accounts in response to the information provided"[7].

The second type of classification- the outcomes of economic consequences- was first suggested by Selto and Neumann (1981) who see income and wealth distribution and resource allocation as the fundamental elements within the economic consequences concept. Therefore, they classify economic consequences in terms of effects on the distribution of income and wealth, and effects on resources allocation, either among firms or within the firm. They (1981, p. 318) distinguish between these two effects by stating that:

> **...resource allocation effects are those which affect the aggregate wealth of the economy (e.g. GNP), and income distribution effects are those which transfer or redistribute that wealth among individuals.**

They also classify economic consequences according to the parties who are affected by publicly reported accounting information. Those parties are classified into three broad categories: "(1) suppliers of information, (2)

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[7] In order to test these three causes, Blake (1992) selected twenty economic consequences issues which have arisen over the development of accounting regulations in the UK since the formulation of the Accounting Standards Committee (ASC). He found that ten economic consequences issues resulted from decisions made by users of accounts; nine issues resulted from the mechanistic application of regulation or contracts; and one issue falls under the compliance/analysis costs heading.

users, and (3) potential suppliers, users and other parties" (Selto and Neumann, 1981, p. 317)[8].

2.2.1 Accounting Regulators and the Economic Consequences Issue

To what extent should accounting regulators take economic consequences issues into consideration when choosing among proposed accounting standards? A number of positions can be taken on this issue. Since the late 1970s and up to the present, the Financial Accounting Standards Board (FASB) has been confronted with three broad views on how it should respond to economic consequences issues:

1. One view sees the investigation of economic consequences as being irrelevant to the accounting regulatory process, and insists that accounting standards should be based on generally accepted practices and that disputes over accounting policies should be resolved by reference to a comprehensive conceptual framework of accounting theory.
2. A second view sees the establishment of accounting standards as being fundamentally a technical matter, but also acknowledges the possible

[8] These two types of classification are then used to construct a matrix format in order to identify economic consequences of accounting information which have been neglected by accounting researchers.

adverse economic consequences that may result from proposed accounting standards.

3. A third view contends that because self-interested groups put pressure on the FASB to adopt the accounting standards that yield the most desirable economic consequences for that group, the FASB should weigh up the economic consequences of potential accounting standards. That is, economic consequences considerations should be adopted as a means of justifying and rationalising the issuance of accounting standards.

The first view is supported by Gellein (1978) who argues that accounting standards should be based primarily on technical considerations because it is difficult to prove that adverse consequences do exist or may exist, and even if they are known to exist, it is difficult to know what weight to give them in accounting policy decisions. Solomons (1978, p. 151) also takes a similar position and argues that: "the criteria by which rules are to be judged is not the effect which they may or may not have on business behaviour. It is the accuracy with which they reflect the facts of the situation.". Latter, Solomons (1986, p. 235) wrote that:

> **To subvert accounting measurements in the supposed interests of one group or another cannot fail to undermine the integrity of accounting and to rob it of its credibility. This brings us back to the importance of neutrality. Neutrality in accounting means freedom from bias, not lack of purpose. There may still be winners and losers after a change in an accounting rule; but the integrity of the system serves everyone's interest in the long run.**

In support of informal or implicit recognition of the economic consequences of accounting standards the following arguments have been put forward:

> **In summary, the accounting standards setters must first develop and articulate the conceptual framework within which they are going to resolve difficult accounting issues. Then, as they undertake specific problems they should make themselves aware of the economic and social ramifications of alternative decisions that might be made** (Wyatt, 1977, p. 94).

> **To what degree should the FASB have regard for economic consequences? To say that any significant economic consequences should be studied by the board does not imply that accounting principles and fair presentation should be dismissed as the principal guiding factor in the board's determination...While some observers might opt for determining accounting standards only with regard to their consequences for economic and social welfare, the FASB would surely preside over its own demise if it were to adopt this course and make decisions primarily on other than accounting grounds** (Zeff, 1978, p. 63).

> **These political pressures cannot be ignored, and individuals and corporations should have an opportunity to be heard; but accounting policy should not be established by political process alone. Technical considerations including the results of theory and research should be of primary importance with the objective of producing the greatest benefit to society** (Hendriksen, 1984, p. 133).

The third view which supports explicit recognition of the economic consequences of accounting standards has been represented by Gerboth (1973, p. 479) who argues: "In the face of conflict between competing interests, rationality as well as prudence lies not in seeking final answers but rather in compromise-essentially a political process". Horngren (1973, p.

61), who was one of the first to specifically refer to the economic consequences issue, also writes:

> **The setting of accounting standards is as mush a product of political action as of flawless logic or empirical findings. Why? Because the setting of standards is a social decision. Standards place restrictions on behavior; therefore, they must be accepted by the affected parties.**

Similarly, Rappaport (1977, p. 98) criticises the FASB and states:

> **In brief, while accounting policymakers can claim to be value free in their standard setting activities by choosing to ignore the consequences of their information choices, the consequences themselves will nonetheless take place. A responsible position of accountability calls for the explicit consideration of economic impact of financial accounting standards by all accounting policymaking bodies.**

As a response to such a criticism, the FASB has organised a conference on economic consequences issues and sponsored special research studies directed towards detecting any economic consequences accounting standards might have on management behaviour or securities markets. In 1978, the FASB acknowledged that accounting standards might give rise to economic consequences; nevertheless, the FASB found it very difficult to know how such economic consequences can be incorporated into the process of setting or choosing accounting standards (FASB, 1978, p. vi).

In the UK, although there has not been the same degree of interest in the economic consequences of accounting standards, one may interpret

ED29, *Accounting for Leases and Hire Purchase Contracts*, as being implicit acknowledgement by the ASC of the relevance of this issue:

> **While the ASC has no doubt that capitalisation of assets held under finance leases is the appropriate technical and practical solution to the accounting problem, it must nevertheless be recognised that there are some who argue that this solution (while technically sound) might have undesirable economic consequences...Commentators who submit reasoned opinions that there would be an unacceptable danger of adverse economic consequences are invited to consider what course should be taken in a standard in place of capitalisation** (ASC, ED29, 1981, para. 33).

This statement, however, implies that accounting standard setting in the UK rests primarily on technical considerations. In general, interest in economic consequences has been most evident in the USA rather than in the UK because:

> **The ASC is a wholly private body. No powers have been delegated to it by government. In consequence, a new accounting rule must command a higher level of support before it can be introduced than is the case with the FASB. Moreover, as noted earlier, the penalties it can impose on those that flout its rulings are severely limited. Since non-compliance is a feasible alternative, producers have less incentive to lobby against proposed standards and there is less call for public interest "excuses"** (Sutton, 1984, p. 92).

2.3 THE POSITIVE ACCOUNTING THEORY

The brief summary of the economic consequences literature given above indicates that its impetus comes from two sources. One is the impact of financial accounting statements on the users' decision-making behaviour.

The other is the existence of corporate contractual relationships. Therefore, one direct way to collect empirical evidence on the existence of economic consequences following from accounting standards is through examining the behaviour of companies themselves. The philosophy underlying this idea is well-known as the positive theory of accounting policy choices. In order to collect such evidence, the positive accounting theory focuses on the behaviour of corporate managers because of their ability to influence economic variables and also, because of their vital role in choosing accounting policies adopted by companies. This theory also utilises the principles of the economic theory of regulation and the contracting and agency theories in order to link accounting standards to changes in the managers' decision-making behaviour. This section considers in detail the concepts of the positive accounting theory under four headings:

1. Development of the positive accounting theory;
2. the political process;
3. the contracting process; and
4. an overview of the positive accounting theory.

2.3.1 Development of The Positive Accounting Theory

The first attempt to develop a positive theory of accounting is due to Hepworth (1953) who argued that managers are concerned with smoothing

their firms' income series. This argument was extended by Gordon in 1964. Gordon argued that managers may be motivated to choose accounting policies which smooth reported income and which smooth the rate of growth in income, because they are rational expected utility of wealth maximisers. On the basis of this proposition a number of empirical studies[9] examined the income smoothing hypothesis. The results from these studies generally indicated that managers' accounting policy choices were aimed at increasing their job security, the level and growth of their income and the size of their companies. These studies are also based on two major assumptions. One is that accounting reports are assumed to be the only source of information available to investors. The other is that stock markets could be 'fooled' by changes in accounting policies. However, subsequent studies of investors' reaction to publicly available financial reports have undermined these two propositions, at least to some degree. The best-known study of the relationship between stock prices and accounting reports is that by Ball and Brown (1968) who looked particularly at annual earnings for a sample of USA companies. They examined the stock market reaction to unexpected changes in annual earnings and found that investors do use accounting

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[9] See, e.g., Gordon, Horwitz and Meyers (1966); Dopuch and Drake (1966); Archibald (1967); Copeland (1968); Copeland and Licastro (1968); Cushing (1969); Dasher and Malcolm (1970); White (1970); Barefield and Comisky (1972); Beidleman (1973).

information but market prices adjust rapidly to the information contained in accounting reports. This evidence indicates that much of the accounting reports' information has already reached the stock market through alternative sources. Brown and Kennelly (1972) observed similar results with quarterly earnings. Patell and Wolfson (1981) also investigated the relationship between earnings announcements and the variance of share returns and noted similar results. The findings of these studies indicate that the first proposition of the income smoothing hypothesis does not hold up. Furthermore, studies of investors' reaction to accounting information based on managers' voluntary choices of accounting policies have also undermined the second proposition of the income smoothing hypothesis. According to the Efficient Market Hypothesis, changes in accounting policies with no known cash flow consequences should have no effect on security prices. The empirical evidence developed by, for example, Archibald (1972), Ball (1972), Kaplan and Roll (1972), Beaver and Dukes (1973), Foster (1975 and 1977), and Hong, Kaplan and Mandelker (1978) indicates that investors are able to distinguish between changes in accounting policies which are purely 'cosmetic' and changes which reflect real economic events. This evidence indicates that investors are able to make adjustments to earnings

and so, managers are not able to mislead investors by manipulating earnings by changing their accounting policies.

However, subsequent studies of the relationship between accounting policy choices and movements in stock prices have yielded conflicting results. The empirical evidence developed by, for example, Dyckman and Smith (1979), Collins and Dent (1979), Lev (1979), Smith (1981b), Collins, Rozeff, and Salatka (1982), and Larcker and Revsine (1983), indicates that changes in some accounting policies have had an effect on security prices. These studies have identified apparently systematic stock price movements in response to accounting policy changes that have no known cash flow consequences. However, even if we assume that these findings are wrong, there remain a number of fundamental questions concerning why managers of companies: (1) are concerned with which accounting policies are used in preparing their financial statements, and (2) lobby for or against certain proposed accounting standards. Recent research has incorporated into accounting the principles of the economic theory of regulation and the contracting and agency theories in order to answer these two questions. Like in the case of the income smoothing literature, this positive accounting research assumes that management acts so as to maximise its own utility. However, the main focus of this research rests with determining how

accounting policies affect cash flows and, hence management's utility, to obtain an insight into factors that influence a manager's choices of accounting procedures. To answer this question, it is assumed that the contracting and monitoring costs associated with companies' political processes, and with companies' (debt and compensation) contracts are nonzero. This nonzero cost assumption suggests that certain accounting methods have the potential to redistribute wealth, and hence the company's or the managers' future cash flows. The following sections consider the arguments underlying this type of research in more detail.

2.3.2 The Political Process

The traditional economic theory of the political process asserts that regulators and legislators act in the 'public interest' by maximising social welfare [see, for example, Posner (1974); McCraw (1975)]. Under this 'public interest' theory, regulators and legislators consider the expected social costs and benefits of their actions, including their review of accounting policies. However, the inconsistencies between this theory and the evidence has led to the formulation of an alternative economic theory of the political process (Watts and Zimmerman, 1979, p. 283). This theory asserts individuals in the political process maximise their own utility [see, for example, Olson (1971); Stigler (1971); Peltzman (1976)]. Under this

'self-interest' theory, the political process is seen as "a competition among individuals for wealth transfer" (Watts and Zimmerman, 1986, p. 224). As a result, individuals involved in the political process incur information costs (the costs of becoming informed), lobbying costs (the costs of taking some actions) and coalition costs (the costs of forming coalitions) (Watts and Zimmerman, 1986, p.222). As defined by Holthausen and Leftwich (1983, pp. 83 and 88) we call the sum of these costs "the contracting and monitoring costs" in the political process. These nonzero contracting and monitoring costs are critical if accounting policy choices are to have economic consequences. This is generally explained via two causal links between firms' cash flows and their reported accounting numbers:

1. Political visibility

Given the assumption of the 'self-interest' theory that individuals in the political process seek to maximise their own wealth, Watts and Zimmerman (1978) and others argue that companies which report high net income are politically visible. Hence, they are more likely to be subject to wealth redistribution (political costs) by individuals in the political process through the imposition of more regulations, special taxes on reported earnings or arguing for various forms of special social

responsibilities[10]. For example, given the 'self-interest' theory, some voters have an incentive to lobby for the imposition of a regulation on an industry or a company. This, in turn, induces politicians to propose such regulations, perhaps because this would increase "their probability of re-election", and/or because the politicians would "expropriate some of the transfers, and increase the resources under their control" (Holthausen and Leftwich, 1983, p. 88). To avoid drawing the lobbyists' attention to themselves, managers of those politically visible companies have incentives (1) to employ income-decreasing accounting policies, and (2) to lobby against proposed accounting standards which would increase their reported net income. However, changes in accounting policies affect the political visibility of companies only if the contracting and monitoring costs in the political process are nonzero. Otherwise, voters can "costlessly" form coalitions, gather information about the effects of the accounting procedures on their welfare, and lobby for a regulation. Further, if the contracting and monitoring costs are not nonzero, politicians themselves can "costlessly" adjust for changes in accounting policies. Collectively, it is argued that if coalitions, lobbying and

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[10] Watts and Zimmerman (1978, p. 8) argue that the likelihood that reported "high" income will be used by individuals in the political process as excuses for imposing regulations increases with the size of the company.

becoming informed are costly, voters as well as politicians will trade off the effects of accounting policy changes on their welfare against the costs of forming coalitions, lobbying and gathering information and the costs of adjustment. For example, Downs (1957a and 1957b) argues that a voter has little incentive to incur costs to gather information relevant to his vote because his effect on an election outcome is very small. Watts and Zimmerman (1978) also argue that politicians will adjust for changes in accounting policies up to the point where the marginal costs of doing so equals the marginal benefit. In this context, it is argued that managers who use (or lobby for) income-decreasing accounting policies, in order to reduce the political visibility of their companies, believe that there is some probability that politicians will not adjust reported earnings numbers. This assumption has allowed positive accounting researchers to test the hypotheses that if a company is large, has high systematic risk, is highly capital intensive or is operating in a highly concentrated industry, its managers are more likely to choose income-decreasing accounting policies in order to avoid the political scrutiny which may result in new regulations adversely affecting the company's future cash flows.

2. Government regulation

Another implication for the 'self-interest' theory is via the linkage between accounting numbers and the cash flow induced by rate-of-return regulations. In the USA the rate-of-return regulation sets maximum prices designed to provide electric utility companies an allowed rate of return on their capital invested, as measured by accounting numbers. If an electric company wants to increase its utility prices, it must show that either its costs have increased or its capital employed (its rate base) has increased. This regulation gives the managers of regulated companies incentives to choose accounting policies which either increase the company's reported costs or increase its investment in order to enhance the arguments for a rise in electricity prices, i.e. a rise in the company's cash flows (Jarrell, 1979). For the same reasons the managers of regulated companies have incentives to lobby for or against proposed accounting standards which have effects on the companies' reported costs or investment base. However, under either of the two cases, the utility regulators' decisions on whether or not to grant a price rise to a regulated company depends on whether consumers exert political pressure on the regulators and coalesce and lobby against the price rise. In turn, given the nonzero contracting and monitoring assumption, this depends on whether the expected benefits

that the consumers would receive in the form of lower prices are greater than the contracting and monitoring costs that they would incur from forming coalitions and lobbying and gathering information about the proposed price rise. Similarly, the utility regulators will adjust for changes in accounting policies up to the point where the marginal costs of doing so equals the marginal benefit to them. If the consumers have expended resources (resulting from forming coalitions, lobbying and becoming informed) for exerting political pressure on the regulators, it is more likely that the regulators would make adjustments for changes in accounting policies as the marginal benefits from doing so are increased. Alternatively, if the consumers have not exerted political pressure on the regulators, allowing the utility's rates to increase is more likely to be in the interest of regulators because the marginal costs of adjusting for changes in accounting policies are greater than the marginal profits. Watts and Zimmerman (1978, p. 117) point out that rational consumers would not incur large contracting and monitoring costs for a small rate increase because "the *per capita* coalition costs each consumer (or some group of consumers)" bears are likely to be much greater than "the small *per capita* benefits" each consumer receives "via lower regulated rates".

Knowing this, the regulators would not make adjustments for changes in accounting policies, i.e. granting the proposed price rise.

2.3.3 The Contracting Process

Coase (1937) observes that, in a world without contracting costs, there would be no need for firms to intermediate between consumers and the owners of factors of production, and all decisions would be based on a complete set of costlessly observable market prices. Therefore, he argues that firms owe their existence to contracting costs. Jensen and Meckling (1976) develop this contracting costs proposition to a view of the firm as a nexus of (explicit and implicit) contracts embodying the property rights of all individual participants in that firm. Jensen and Meckling argue that because of the lack of a complete contract, each set of the participants in the firm will pursue their own interests at the expense of other participants. Therefore, this self-interest behaviour produces conflicts. In the context of a firm in the private sector, there are two possible conflicts. The first is the conflict between management and shareholders; decisions that maximise managers' expected utility do not necessarily maximise the shareholders' expected utility. This conflict gives rise to the so-called agency costs of equity. These costs include the reduction in a firm's value when shareholders perceive managers as not acting in the shareholders' best

interests; specifically where managers act inefficiently or do not invest in profitable projects, as the shareholders would like. Jensen and Meckling argue that these costs are borne by managers if no action is taken to reduce them by monitoring and bonding contracts. Therefore, it is argued that in order to reduce these agency costs, managers will voluntarily enter into monitoring and bonding contracts which seek to guarantee that they will not exploit shareholders. An example of such contracts is a management compensation plan which provides that a portion of management's rewards be related to its reported earnings.

The second possible conflict is the conflict of interest between shareholders and debtholders; decisions favourable to shareholders are not necessarily in the best interests of debtholders. This conflict gives rise to the so-called agency costs of debt. These costs arise because of, for example, excessive dividend payments, disposal of all or part of the assets of the firm, under-investment, bankruptcy and reorganisation, etc[11]. Jensen and Meckling also argue that these costs are borne by shareholders/managers[12] if no action is taken to reduce them by monitoring and bonding devices. Thus,

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[11] For a detailed description of such costs see Jensen and Meckling (1976), Myers (1977), Smith and Warner (1979) and Watts and Zimmerman (1986), among others.

[12] Note that in analysing the shareholder/debtholder conflict, it is normally assumed that managers act as if they own 100% of the firm's equity (i.e. acting on behalf of shareholders). This allows us to ignore the agency costs of equity (Whittred, Zimmer and Taylor, 1996, p. 36).

it is assumed that managers have incentives to enter into monitoring and bonding contracts in order to reduce the agency costs of debt. Writing restrictive covenants in debt agreements is an example of these contracts.

However, accounting numbers are often used to set the covenant conditions of both compensation and debt contracts and to monitor whether or not these conditions have been breached. This implies that accounting policies that underlie the accounting numbers are selected as a part of the wealth-maximising process. Thus, managers' wealth can be affected by changes in accounting policies and hence there are incentives for managers to use certain accounting policies in such a way as to enhance the company's or their future cash flows. However, this would occur only if the contracting and monitoring costs in the contracting process are nonzero; that is, if designing, negotiating, writing, renegotiating and evaluating compliance with the terms of contracts are costly (Holthausen and Leftwich, 1983, p 78). The links between these nonzero contracting and monitoring costs and changes in accounting policies may be explained further as follows:

1. Management compensation plans

Compensation schemes often include bonus plans and/or stock option plans designed to allow managers a share of a firm's profits. These schemes are typically stated in terms of accounting net profit, or rate of

return on book value of assets. Hence, such compensation schemes can be affected by accounting policy choices. Therefore, managers may be motivated to influence the remuneration they receive by choosing (and lobbying for) accounting policies that are perceived to increase the present value of their compensation packages[13]. However, changes in accounting policies affect the present value of the managers' compensation packages only if it is costly to negotiate and monitor the terms of compensation plans, and if it is costly to renegotiate and adjust the effect of changes in accounting policies on the compensation plans. If negotiating and monitoring the terms of compensation plans are costless, *ex ante* accounting policies can be precisely specified, so that managers' remuneration will not be affected by any future accounting policy changes. Similarly, if renegotiation and adjustment are not costly, the effect of changes in accounting policies on the compensation plans can be completely offset, *ex post*. Watts and Zimmerman (1978) argue that shareholders (or members of a compensation committee) will adjust for changes in accounting policies up to the point where the marginal cost of doing so equals the marginal benefit. In this context, Watts and

[13] Note that, even if there is no explicit or implicit links between financial statement variables and management compensation plans, the effect of reported accounting profit on a firm's political visibility could result in management considering this factor in accounting policy choices.

Zimmerman (1978) and others argue that managers who use (or lobby for) income-increasing accounting policies, believe that there is some probability that shareholders (or members of a compensation committee) will not adjust the compensation plans. This assumption has allowed positive accounting researchers to deduce the following testable hypothesis: managers of companies with management compensation plans are more likely to adopt income-increasing accounting policies than managers of companies without management compensation plans.

2. Debt agreements

Debt agreements often contain restrictive covenants stated in terms of accounting numbers and designed to limit management's ability to create wealth transfers between debt and equity holders. Examples of typical covenants found in debt agreements include restrictions on the payment of dividends, the issuance of new debts, the disposition of assets and merger activity. Watts (1977) suggests that these constraints may explain management's accounting policy choices. Changes in accounting policies used to calculate the accounting numbers in debt agreements induce effective changes in the restrictions of these agreements, which in turn alter the economic wealth or cash flows of all parties (managers, shareholders and debtholders) to these debt agreements, and the

probability of default on loan covenants. Therefore, managers/shareholders' wealth can be affected by changes in accounting policies and hence there are incentives for managers to use (or lobby for) accounting policies that would lead to an increase in the company's cash flows. However, accounting policy choices affect a company's cash flows only if the contracting and monitoring costs are nonzero. As Holthausen and Leftwich (1983, pp 86-87) put it:

> **If negotiating and monitoring debt agreements are costless, then the lending agreement can specify, *ex ante*, accounting rules so precisely that the restrictions will be unaffected by subsequent voluntary or mandatory accounting rule changes. Alternatively, if renegotiation is costless, borrowers and lenders can (costlessly) negate accounting rule changes as they occur. Finally, with costless recapitalization, the borrower can negate the accounting changes (costlessly) by repurchasing the debt, and reissuing it subject to a new agreement incorporating the modified accounting rules.**

Like management compensation plans, it is argued that parties to these debt agreements trade off the effects of accounting policy changes on an debt agreement against the costs of negotiation and monitoring, renegotiation or recapitalization. Watts and Zimmerman (1978) and others argue that managers who use (or lobby for) income-increasing accounting policies believe that there is some probability that debt agreements will not be adjusted. This assumption has allowed positive accounting researchers to hypothesise that the higher the leverage (the long-term

debt/total assets ratio) of a company, the more binding are the debt covenants and thus the more likely that the company's managers will opt for income-increasing accounting policies.

2.3.4 An Overview of The Positive Accounting Theory

The positive accounting theory is associated with the names of Ross Watts and Jerold Zimmerman. In their first article, *Towards a Positive Theory of the Determination of Accounting Standards*, Watts and Zimmerman (1978, p. 112) note that:

> **Such a theory will help us to understand better the source of the pressures driving the accounting standard-setting process, the effects of various accounting standards on different groups of individuals and allocation of resources, and why various groups are willing to expend resources trying to affect the standard-setting process.**

They (1978, p. 113) also note that because managers play "a central role in the determination of standards", concentration on their incentives is sufficient for that understanding. In their book-length exposition, *Positive Accounting Theory*, Watts and Zimmerman (1986, p. 5) explicitly credit the formulation of the positive accounting theory to developments in economics and finance. Of particular importance are:

1. The economic theories of regulation;

2. the Efficient Market Hypothesis (EMH);

3. the Capital Assets Pricing Model (CAPM);

4. the theory of rational expectations; and

5. contracting and agency theory.

The economic theories of regulation fulfil a crucial role in positive accounting theory. The developments in these theories have allowed positive accounting researchers to assume that:

1. Individuals in the political process are motivated only by their self-interest, i.e. not by their public interest.

The Efficient Market Hypothesis (EMH) and the Capital Assets Pricing Model (CAPM) also play an important role in the formulation of the positive accounting theory. The EMH, briefly stated, states that stock prices accurately reflect all available information, and, if so, no one can consistently earn an above average return and stock prices will adjust rapidly and in an unbiased fashion to new information. This theory allows positive accounting researchers to investigate two major questions: (1) are variations in accounting earnings unrelated to variations in stock prices?, and (2) whether or not changes in accounting policies and the earnings they imply systematically affect or mislead stock markets? The CAPM has been used to provide the linkage between accounting numbers and stock prices. Watts and Zimmerman (1986, p. 73) note that:

> **Under the multiperiod CAPM, the market value of the firm is a function of the firm's expected future cash-flows and the expected rate of return. In the CAPM world...there is no reason to expect a change in an accounting procedure to carry any implications for cash flows. In that world there are no transactions costs, no costs of contracting and no information processing costs. Information is assumed costless and available to all investors. Since it costs investors the same amount (zero) to process accounting earnings calculated under different methods, there is no reason for a firm's manager to prefer one accounting method over another. So without additional assumptions, an accounting change has no implications for stock prices in the CAPM world.**

Since several studies have shown that stock prices are affected by changes in certain accounting policies, which according to the EMH and the CAPM should provide no beneficial effects for stock prices, and since positive accounting researchers are concerned with explaining why managers prefer some accounting policies over others, this has led to: (1) extend the theory of rational expectations to the market for managers (Watts and Zimmerman 1986, pp. 183-185) and to the individuals in the political process (Watts and Zimmerman 1986, p. 227) in order to drop the CAPM assumption of zero information costs, and (2) use the contracting and agency theory in order to relax the CAPM assumption of zero contracting costs. These two theories have, therefore, allowed positive accounting researchers to introduce the following core assumptions:

2. Individuals in the political and contracting processes are rational and aware of the nature of their relation with each other;

3. contracting and monitoring costs in the political process (information, lobbying and coalition costs) and in the contracting process (designing, negotiating, writing, renegotiating and evaluating compliance with the terms of contracts) are nonzero;
4. given the assumptions (1-3), individuals in the political and contracting processes will adjust a company's accounting numbers for changes in accounting policies only up to the point where the marginal cost of adjustment is equal to its marginal benefit; and
5. managers believe that there is some probability that the intended impact of accounting policies on the financial reports will not be adjusted by the affected parties.

The conjunction of these assumptions has allowed accounting researchers to deduce the following testable hypotheses which have been the basis for several positive accounting studies:

Size Hypothesis. Ceteris paribus, the larger the firm, the more likely the manager is to choose accounting procedures that defer reported earnings from current to future periods (Watts and Zimmerman, 1986, p. 235).

Bonus Plan Hypothesis. Ceteris paribus, managers of firms with bonus plans are more likely to choose accounting procedures that shift reported earnings from future periods to the current period (Watts and

Zimmerman, 1986, p. 208).

Debt/Equity Hypothesis. Ceteris paribus, the larger a firm's debt/equity ratio, the more likely the firm's manager is to select accounting procedures that shift reported earnings from future periods to the current period (Watts and Zimmerman, 1986, p. 216).

Finally, it is clear that managers should trade-off between the conflicting pressures that result from the political and contracting processes when selecting an accounting policy. For example, the selection of a particular accounting policy may increase benefits under the bonus plan but also increase the probability of a debt covenant constraint violation or political intervention. Hence, managers are assumed to choose the accounting policy that best balances these conflicting interests. It should be noted, however, that positive accounting researchers to date have been unable to construct an intertemporal model to show how this will be done. In this regard, Watts and Zimmerman (1990, p. 152) note that this task is not easy although "it seems essential to significant advances in both the theories of the firm and of accounting".

CHAPTER THREE:

ECONOMIC CONSEQUENCES: THE EVIDENCE

3.0 INTRODUCTION

This chapter presents the foundations for the empirical work contained in the present study. Over the last three decades a substantial number of applied economic consequences studies have emerged. Most of these studies have focused on linking accounting standards to changes in the decision-making behaviour of the users of financial statements; more specifically, they have concentrated on the impact of particular accounting policies on managers' and equity investors' decisions. In general, these studies can be chronologically classified into three broad categories; income smoothing studies, stock market studies, and positive accounting studies.

The income smoothing research has focused on the hypothesis that managers would be motivated to choose accounting policies which smooth reported income and which smooth the rate of growth in income, perhaps because this would increase their job security, the level and growth of corporate income and growth and size of their companies[14].

Studies of investors' reactions to accounting information based on managers' voluntary choices of accounting policies have subsequently showed that investors are able to distinguish between changes in accounting

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[14] **Op. Cit. (9).**

policies which are purely 'cosmetic' and changes which reflect real economic events, suggesting that managers are not able to mislead investors through opportunistically chosen accounting policies, i.e. changes in financial accounting standards are not likely to alter the decisions of investors and hence have no economic consequences[15].

Over the last twenty years a large volume of research has sought to answer a number of fundamental questions concerning why managers of companies: (1) are concerned with the choice of accounting policies although there will be no stock price effects resulting from cosmetic changes in accounting policies, and (2) lobby for or against certain proposed accounting standards. Studies which have attempted to answer these two questions have applied 'the nonzero contracting and political cost perspective' and generally concluded that managers do so either to increase the present value of their compensation packages in which certain accounting variables are key components, or because they believe that users will react to the publicly disclosed accounting information in a certain way[16].

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[15] See, for example, Archibald (1972), Ball (1972), Kaplan and Roll (1972), Beaver and Dukes (1973), Foster (1975 and 1977), Sunder (1975), Cassidy (1976), and Hong, Kaplan and Mandelker (1978).

[16] See, for example, Holthausen and Leftwich (1983), Watts and Zimmerman (1986 and 1990), and Christie (1990).

Our study falls into the last category and hence this chapter reviews the applied economic consequences research which utilises the costly-contracting and political cost hypothesis ideas. This research has been classified into the following categories by Holthausen and Leftwich (1983):

(1) Studies which examine the effects of existing or proposed accounting standards on the magnitude and direction of the abnormal returns of firms, and how these effects relate to firms' specific characteristics;

(2) studies which test the economic determinants that motivate management's lobbying behaviour on a new accounting standard; and

(3) studies which attempt to identify the economic factors that motivate management to voluntarily adopt a particular accounting policy.

Following this three fold classification scheme, we organise this chapter into four sections. The first section covers studies which have applied the nonzero contracting and political cost perspective to explain stock price effects associated with 'cosmetic' changes in accounting policies. In this section we first provide a linkage between stock market theories and the concept of the economic consequences and the positive accounting theory. We then review studies of price changes accompanying 'voluntary' and 'mandatory'' accounting policy changes, and provide a brief summary of them.

The second section looks at a number of studies which have been conducted to understand and predict lobbying activities. This section is divided into three subsections. The first focuses on the descriptive research which has attempted to identify who lobbies. The second subsection reviews some important and recent studies which have empirically tested the economic factors that might be behind lobbying behaviour. The third subsection contains a brief summary.

The third section reviews studies which test the validity of using the costly-contracting and political cost hypothesis ideas to explain why managers prefer certain accounting policies over others. In this section we begin our review with an examination of studies which attempt to understand and predict management's accounting policy decisions in developed countries such as the USA, the UK, Australia and New Zealand. We then review a number of studies which have attempted to evaluate the robustness of using the nonzero contracting and political cost hypothesis to explain the choice of accounting policies in less developed countries such as Taiwan, Nigeria and Saudi Arabia. Finally, we provide a summary of the findings of the studies reviewed in this section.

The fourth section serves two purposes. First, it summarises the consistency of the empirical evidence across studies using the three fold

classification scheme presented earlier. Second, it identifies the most tested hypotheses which may be relevant to the design of our own study.

Finally, it is worth emphasising that: (1) because the literature in this area is huge and growing at an exponential rate, it is not practical to attempt to review it all. We have selected a number of studies which seem most relevant to our own work; that is, studies which adopt the costly-contracting and monitoring cost perspective in an attempt to demonstrate the existence of economic consequences; (2) all the major accounting journals for the period 1990 to 1998 have been systematically reviewed in order to identify whether any recent findings or developments are relevant; (3) as is the case with the economic consequences literature generally, most of the studies reviewed in this chapter relate to the USA; nevertheless, some studies conducted in other countries have been found useful and hence incorporated into our review; and (4) given the different socio-economic environment in which Saudi companies operate, the results of the studies reviewed in this chapter need to be cautiously interpreted in the context of the Saudi Arabia environment.

3.1 EVIDENCE ON STOCK PRICE REACTION

There are few areas in finance and accounting that have received as much attention as the relationship between stock prices and accounting

numbers. Since the late 1960s, a large volume of research has investigated this relationship, in an attempt to explain stock price effects associated with changes in accounting policies. In this section, we review examples of studies that have analysed this relationship within the economic consequences and positive accounting theory frameworks (i.e. studies that test specific contracting and political cost hypotheses). Within these frameworks, the major concern is why stock market prices react to changes in accounting policies even though the changes have no significant direct effects or implications for the firm's future cash flows. In this regard, researchers have distinguished 'voluntary' accounting policy changes and 'mandatory' accounting policy changes because the anticipated stock price effect depends upon the type of change:

> **The analysis of the stock price effects of procedure changes depends on whether the changes are made voluntarily by the managers or are mandated by a FASB statement or SEC release** (Watts and Zimmerman, 1986, p. 217).

Therefore, the discussion below is spilt between studies of price changes accompanying 'voluntary' accounting policy changes and studies of price changes accompanying 'mandated' accounting policy changes. Before reviewing these studies, we first provide a linkage between stock market theories and the economic consequences and positive accounting theory hypotheses. We believe that this linkage is necessary and may be instructive

as an aid to understanding the arguments underlying the studies reviewed in this section.

3.1.1 Stock Market Studies: A Positive Accounting Approach

As already noted in chapter two (section 2.2.2), the term 'economic consequences' may be defined in terms of the impact accounting standards have on preparers and users of financial accounting reports as well as the public as a whole. The empirical testing of the economic consequences hypothesis has been largely based on the competing hypotheses of the naïve investor and inefficient capital markets. It is widely believed that investors pay attention to the reported net income figure (or earnings per share) alone and largely ignore accounting rules upon which it is based. This view is based on the presumption that a stock market is composed of a large number of individual investors, most of whom are relatively unsophisticated and therefore have only limited ability to understand and interpret financial reports properly[17]. The result, it is argued, is that these naïve investors may be unduly influenced by changes in accounting policies. That is, an earnings increasing accounting change is accompanied by a positive abnormal stock return and an earnings decreasing accounting change is accompanied by a

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[17] Archibald (1972, p. 24) referred to this view as "the naïve investor hypothesis".

negative abnormal return, regardless of the effect of the change on the firms' cash flows.

In an efficient market, stock prices incorporate all information in a rapid and unbiased manner, and investors cannot use this information to obtain consistently higher stock returns than justified by an investment's risk. These ideas are known as the Efficient Market Hypothesis. The term 'market efficiency' refers to the rapidity and accuracy of price adjustment to new information. That is, markets that adjust more rapidly and accurately to information are considered to be more efficient. In this view, three forms of market efficiency have been identified: (1) the 'weak' form indicates that stock prices fully reflect all information embodied in the past stock prices and volumes; (2) the 'semistrong' form indicates that stock prices fully reflect all publicly available information; and (3) the 'strong' form indicates that stock prices fully reflect all information, both public and private. Because accounting information is generally publicly available, it falls under the gambit of semistrong-form market efficiency. Many empirical studies[18] have supported semistrong market efficiency, and demonstrated that

[18] See, for example, Archibald (1972), Ball (1972), Kaplan and Roll (1972), Beaver and Dukes (1973), Foster (1975), Sunder (1975), Cassidy (1976), Dukes (1976), Foster (1977), and Hong, Kaplan and Mandelker (1978). For analysis of these studies, see Beaver (1981, pp. 150-158).

investors are able to distinguish between the 'real' and the 'cosmetic' effects of accounting procedures used in financial accounting reports.

Many changes in accounting policies appear to be cosmetic, having no significant impact on firms' cash flows. Under the Efficient Market Hypothesis, such cosmetic changes should have no effect on stock prices.

> **... If equity markets are efficient, available information is incorporated in stock prices and the mandatory changes in accounting principles should not result in abnormal price movements unless the change induces unanticipated effects on cash flows to or from the firm and its equity-holders** (Leftwich, 1981, p. 4).

In fact, many empirical studies have demonstrated that there is a market reaction to cosmetic changes in accounting policies[19]. The results of these studies generally reflect a belief that stock markets are inefficient and investors concentrate their attention on the bottom-line income figures. For example, the idea that expensing oil and gas exploration costs of unsuccessful wells (dry wells) and capitalising only the exploration costs of successful wells (wet wells) would have adverse effects on the stock prices of the American oil exploration companies, is in fact contrary to the Efficient Market Hypothesis, since neither the successful-efforts method nor the full-cost method should affect corporate cash flows. However, under the positive

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[19] As well as those mentioned in the following subsections see also the results of, Dyckman and Smith (1979), Collins and Dent (1979), Lev (1979), Smith (1981), Collins, Rozeff, and Salatka (1982), Larcker and Revsine (1983), and Lobo and Song (1989). For a brief analysis of these studies, see chapter two (section 2.2).

accounting theory, seemingly cosmetic changes in accounting policies can indirectly affect firms' cash flows and hence stock prices by altering the agency costs, taxes, regulatory commission actions, and political costs. Changes in accounting policies may alter the accounting numbers in debt and management compensation contracts, and hence have indirect cash flow effects, which in turn may (or may not) produce stock market responses. Similarly, accounting policy changes may alter the revenues of regulated utility firms, and hence have indirect cash flow effects. Additionally, changes in accounting procedures may affect the political costs incurred by firms from government actions, and hence the firms' cash flows could be affected. Collectively, the positive accounting theory asserts that accounting policy changes, even seemingly cosmetic policy changes, may have significant direct or indirect cash flow effects and hence stock price effects. Studies reviewed below have used this view in order to explain stock price effects associated with changes in accounting policies. In general, these studies use cross-sectional regression models which can be characterised as:

$$e_i = F(\text{firm specific variables}) + W_i \qquad i = 1,\ldots,n,$$

where e_i= abnormal rate of return for firm i and W_i= disturbance term. This functional form is generally assumed to be linear in order that the linear regression model can be used to test whether the hypothesised firm

specific variables such as size and the debt/equity ratio have explanatory power.

3.1.2 Studies of Voluntary Accounting Changes

The only paper which examines the variation in firms' abnormal returns around the time of a voluntary change in accounting policies[20] is that of Holthausen (1981) who investigated 125 firms that voluntarily changed their depreciation accounting method during the period 1954-1977 from accelerated to straight-line depreciation for financial reporting purposes only[21]. Holthausen asserted that such a change would lead to an increase in reported earnings and assets, and hence hypothesised that the effect of the change:

1. Would result in an increase in firms' political costs, and thus a decrease in share prices;
2. with respect to debt covenants, would result in a transfer of wealth from debtholders to shareholders and a reduced probability of technical default, thus increasing stock prices; and

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[20] In fact, there are several studies which have investigated stock price reactions to voluntary accounting policy changes. See, for example, Archibald (1972), Ball (1972), Kaplan and Roll (1972). However, because these studies are not related to the work on economic consequences of accounting policy choices, they are not reviewed in this subsection.

[21] Without changing their tax-accounting method.

3. with respect to management compensation plans, would result in the transfer of wealth from shareholders to managers[22], thus decreasing stock prices.

Holthausen used multiple regression analysis, where the stock price changes associated with the switchback announcement were regressed on the earnings effect of the change, the debt/equity ratio, the proportion of public to private debt, the existence of an earnings-based compensation plan, and size. His findings indicated that the abnormal returns immediately surrounding the announcement of the change in depreciation method were negative and insignificant. Furthermore, the negative abnormal returns were not found to be systematically associated with the political costs, debt contracts or the existence of an earnings-based management compensation plan. Therefore, he concluded:

> **... If managements do in fact change depreciation techniques because of the provisions of bond indenture agreements or management compensation contracts, the tests in this paper are not powerful enough to detect their importance** (Holthausen, 1981, p. 75).

It should be emphasised, however, that it is very difficult to design powerful enough tests to measure the stock price effect of voluntary accounting changes. One major problem is the possibility that the

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[22] Since earnings increase and hence so do managerial bonuses.

hypothesised stock price effects are very small relative to the variance in equity returns and hence difficult to observe. This difficulty of detecting the hypothesised effects is also:

> **... increased by the fact that the market is likely to expect the change. If a firm is in danger of violating a debt/equity constraint because of recent losses, the market will expect the change with high probability (and impound its effect in the stock price). There will be little surprise (and hence little stock price effect) when the firm actually changes procedures** (Watts and Zimmerman, 1986, p. 218).

3.1.3 Studies of Mandatory Accounting Changes

Unlike voluntary changes, more successful tests may be possible in the case of mandatory accounting changes. Given that mandated changes may adversely or beneficially affect firms, there will therefore be more systematic cross-sectional variation between firms; hence, the stock price effects are more likely to be observable. Therefore, several researchers in accounting have focused on the stock price effects associated with mandated accounting changes[23]. However, few studies have applied the costly-contracting and political hypothesis ideas to explain this relationship[24].

Gopalakrishnan and Sugrue (1992) examined the impact of the FASB

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[23] See, for example, Collins and Dent (1979), Dyckman and Smith (1979), Lev (1979), Collins, Rozeff, and Salatka (1982), Larcker and Revsine (1983), and Lobo and Song (1989).

[24] As well as those mentioned below see also the results of, Leftwich (1981), Collins, Rozeff, and Dhaliwal (1981), and Lys (1984). Watts and Zimmerman (1986, pp. 295-307) provide a detailed review of these three early studies.

Statement No. 87, *"Employers' Accounting for Pensions"*, on the private lending agreements and stock prices of 26 firms which they believed had the highest probability of debt covenant violations during the period 1981-1985. They argue that reflecting pension liabilities in the balance sheet, rather than in the footnotes, can affect the debt/equity ratios of firms and hence their conformity to exiting debt covenants.

> **The FASB received hundreds of comments from large firms indicating that the new pensions rule would bring negative economic consequences particularly in the form of reduced slack in accounting-based debt covenants, higher likelihood of technical default, costly renegotiations and depressed stock prices** (Gopalakrishnan and Sugrue, 1992, p. 752).

Gopalakrishnan and Sugrue investigated eight event dates[25] which followed the standard period of deliberation for the exposure draft, including the issue of the exposure draft itself, and employed a Multivariate Regression Model[26] in their statistical analysis. Their findings lend no support to the debt covenant hypothesis:

> **... even though SFAS No. 87 mandated some radical changes in the area of pension accounting and had a serious impact on the financial statements for the twenty six firms examined, it appears to have little economic consequences through its impact on slack present in accounting-based debt covenants** (Gopalakrishnan and Sugrue, 1992, p.767)

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[25] See Gopalakrishnan and Sugrue (1992, p. 755) for the list of events.

[26] Gopalakrishnan and Sugrue (1992, p. 774, footnote No. 19) also used Ordinary Least Squares (OLS) regression techniques and the results were not significantly different from those of the Multivariate Regression Model.

El-Gazzar (1993) investigated the effect of complying with the FASB Statement No. 13, *"Capitalization of Leases"*, on the lessee's stock returns and the tightness of debt covenant constraints. He argues that reflecting financing on the face of, rather than off, the balance sheet may increase the possibility of technical default:

> **Capitalization of off-balance sheet leases increases assets and liabilities and typically reduces reported income and retained earnings. These changes increase the likelihood of violating debt covenant restrictions if debt agreements use rolling GAAP** (El-Gazzar, 1993, p. 259).

Unlike the earlier research into mandatory accounting changes, El-Gazzar casts doubt on the adequacy of the debt/equity ratio as a proxy for closeness to debt covenant violations. Consequently, he analysed the actual format of the debt contracts and developed a more precise measure of the effect of the FASB Statement No. 13 on the tightness of debt covenant constraints[27]. El-Gazzar found that the abnormal returns for two of the seven events investigated were significant. He (p. 270) then investigated these two events and concluded that: "the percentage increase in the tightness of debt covenant restrictions is correlated with changes in security prices that accompanied the regulatory events of SFAS No. 13".

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[27] **See El-Gazzar, (1993, pp. 266-267).**

In a follow-up study, Mohrman (1993) investigated the actual details of the debt contracts of the USA oil and gas companies which had been regulated by the FASB Statement No. 19, "*Financial Accounting and Reporting by Oil and Gas Producing Companies*". The results from this study indicated that:

> **...changes in the probability of debt covenant violations are related to the stock price response to an accounting policy decision, but that a leverage variable does not provide an adequate proxy for this effect** (Mohrman, 1993, p. 287).

Unlike the studies reviewed above, Espahbodi, Espahbodi and Tehranian (1995) investigated the stock price changes associated with two generally income-increasing accounting standards, namely the FASB Statements No. 96 and No. 109. Those two standards do not restrict the acceptable set of accounting policies; rather, they replace one acceptable procedure with another. Basically, the FASB Statements No. 96 and No. 109, unlike APB Opinion No. 11, require that the deferred tax liability be adjusted for changes in tax rates and laws, and allow American companies to report the cumulative effect of the change from APB Opinion No. 11 to the FASB Statements No. 96 or No. 109 either to appear on the income statement, or as an adjustment to beginning retained earnings. Espahbodi, Espahbodi and Tehranian argue that such a switch in the method of accounting for income taxes would increase income and/or retained earnings

and decrease liabilities, and hence hypothesise that firms are expected to exhibit significant positive abnormal rates of return around the issuance of the Exposure Drafts leading to the FASB Statements No. 96 or No. 109. They calculated the abnormal rates of return for a sample of 500 firms and found that the three-day abnormal returns around the issuance of the Exposure Drafts leading to the FASB Statements No. 96 and No. 109 have the expected signs and are significantly different from zero at the 5% and 1% levels, respectively. Espahbodi, Espahbodi and Tehranian (p. 667) also found that a firm's abnormal return is:

> **...positively related to the existence of postretirement benefits (POSTRET), net operating loss carryforwards over total assets (CARRYFWD), and debt ratio (DEBTA); and negatively related to acquisitions over total assets (ACQU), and the market value of the firm (MKTVAL).**

Dechow, Hutton and Sloan (1996) examined the equity price reaction to the FASB's 1993 Exposure Draft proposing the recognition of an expense for the estimated value of employee stock options[28]. They (p. 3) argue that this new financial reporting rule would "permanently reduce income and retained earnings" and, based on contracting and political cost hypotheses, would cause a fall in the stock prices of all firms that now had to expense employee stock options. Three different samples were used to test for the

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[28] Dechow, Hutton and Sloan (1996) also examined the characteristics of firms lobbying against this Exposure Draft. Their finding on this issue are discussed in section (3.2.2).

economic consequences of expensing employee stock options: (1) a sample of 347 firms submitting opposing letters to the FASB's 1993 Exposure Draft; (2) a sample of 136 biotechnology firms; and (3) a sample of 598 firms from five industries which are found to be the most intensive users of employee stock options. Dechow, Hutton and Sloan identified three event dates that could have influenced the market's expectations about the new restricted financial reporting rule. The first event date is the announcement of the FASB vote to move forward with expensing employee stock options. The second event date is the release of the FASB's 1993 Exposure Draft. The last event date is when the FASB dropped its proposal for mandatory expensing of employee stock options. The overall results of Dechow, Hutton and Sloan (1996, p. 19)'s study indicate that there is no systematic evidence:

> **... that expensing employee stock options would engender significant economic consequences through the size and debt hypotheses popularized in the academic literature [and]... that investors reacted to news concerning mandatory expensing of stock options.**

3.1.4 Summary

The studies reviewed above have examined the cross-sectional variations in firms' abnormal returns around the announcement of a voluntary or mandatory change in accounting policies. The accounting

changes around which abnormal returns are measured include the voluntary change from accelerated to straight-line depreciation, and the mandatory changes required by SFAS Nos. 87, 13, 19, 96 and 109, and the FASB's 1993 Exposure Draft on accounting for employee stock options. The proxies used as explanatory variables are firms' contractual agreements and political visibility. The evidence generated from these studies is generally mixed. Overall, the results of the mandated change studies are more consistent with the economic consequences framework than that of Holthausen (1981)'s voluntary change study and show that, on average, the cross-sectional stock price effect variation is related to some political and contracting variables, particularly the debt covenant variables.

3.2 EVIDENCE ON LOBBYING BEHAVIOUR

The view that the setting of financial accounting standards is a political rather than a technical process has long been recognised, particularly in the USA and the UK. The technical view sees the setting of accounting standards as being a process of identifying 'best' accounting practice in which case the accounting standards setting process can be served better by the development of accounting concepts and technical rules. On the other hand, the political view sees accounting standard setting as being a process of imposing restrictions on behaviour in which case it is

important that accounting standards should be accepted by the affected parties. The actions which those affected parties take to persuade accounting regulatory bodies to promote or avoid new standards are collectively called lobbying activities. Such lobbying actions take a variety of forms ranging from written submissions to formal and informal pressures on elected representatives or government agencies. Apart from written submissions, almost all forms of lobbying activity are extremely difficult to observe or measure. The results are that studies on lobbying behaviour are limited and have all been based on the formal written submissions to accounting regulatory bodies. In general, research into lobbying behaviour can be divided into two categories; descriptive research and empirical research.

3.2.1 Descriptive Studies on Lobbying Behaviour

Descriptive research has used the formal written submissions on exposure drafts that are made to the ASC in an attempt to identify the nature and extent of lobbing attitudes. Hope and Briggs (1982), for example, examined the ASC's issue of deferred taxation and documented the following influences:

1. The ASC's first proposal for an accounting standard on deferred taxation was the issuance of ED11 in 1973, which required provision in full for deferred taxation by the deferral method. Hope and Briggs (1982, p. 88)

attribute this choice to the influence of the APB in the USA and the Accountants International Study Group.

2. Two years later, following criticism from both industrial and professional bodies, the ASC issued SSAP 11 which required provision in full for deferred taxation and allowed companies to use either the deferral method or the liability method.
3. In 1977, the ASC, as a response to industrial opposition, issued ED19 which reversed the requirements mandated by SSAP 11. ED19 specified conditions for partial provision for deferred taxation and required the application of the liability method.
4. ED19 had been extensively criticised by practitioners, and as a response, the ASC agreed to reverse the most controversial elements of ED19 and introduced a second standard (SSAP 15 in 1978). SSAP 15 required provision for deferred taxation on timing differences, but allowed companies to choose either the deferral method or the liability method.
5. Finally, ED33, issued in 1983, required the application of the liability method and specified some changes in the conditions for partial provision.

In general, Hope and Briggs (1982, p. 93) concluded that "professional and business opinion" is the main factor influencing the ASC's change of

approach on the accounting treatment of deferred taxation. Hope and Gray (1982) also note a similar result with the development of an accounting standard on accounting for research and development (R&D) expenditure[29]. Their (p. 551) conclusion summarises the findings of the study:

> **... the analysis of the formal evidence submitted to ED14 and ED17 suggests that the ASC changed its position on the issues of accounting treatment and disclosure of R&D because of the wishes of industry - in particular because of the representations of the aerospace industry.**

This conclusion has led Hope and Gray (p. 551) to ask the following question: what are "the reasons for the intervention of the aerospace industry" ? In his analysis of lobbying of accounting standard-setting bodies in the UK and the USA, Sutton (1984, p. 93) provides the following answer:

> **The analysis of the characteristics of lobbyists suggests the following generalisations:**
>
> **(1) Producers of financial statements are more likely to lobby (i.e. find the activity more profitable) than consumers of such statements;**
>
> **(2) Large producers are more likely to lobby than small producers;**
>
> **(3) Undiversified producers are more likely to lobby than diversified producers.**

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[29] The issue of research and development (R&D) costs was first considered in 1975 and later in 1976 when the ASC issued ED14 and ED17. These two exposure drafts were then used as a basis for the issuance of SSAP 13 in 1977 and for its revision in 1989.

3.2.2 Empirical Studies on Lobbying Behaviour

The second category of research provides an empirical assessment of the question cited above by Hope and Gray (1982). Specifically, this research attempts to address the question: what are the economic determinants of management's lobbying behaviour on a proposed accounting standard? This empirical research has been mainly conducted in America and uses the formal written submissions to the FASB's discussion memorandums on the issue of certain accounting standards.

The earliest paper which predicts management lobbying behaviour was Watts and Zimmerman (1978). They assert that a firm's lobbying position on a proposed accounting standard is determined by the perceived impact of such a standard on the taxes, regulation, political costs, information production costs and management compensation plans of the firm. On the basis of this assumption, Watts and Zimmerman (p. 118) hypothesise that:

1. Large firms will lobby for a proposed accounting standard that would reduce reported earnings, because the benefits to the larger firms provided by lower reported earnings due to tax, regulation and political considerations are greater than the additional costs to be incurred in the form of adjustment for management compensation plans, information

production costs, and costs of lobbying; and

2. all other firms will lobby against a proposed accounting standard that would reduce reported earnings if the additional information production costs justify the costs of lobbying.

These hypotheses were empirically tested by examining 52 corporate lobbying positions submitted to the FASB on the discussion memorandum proposing General Price-Level Adjusted (GPLA) financial statements. These firms were then classified according to the impact of the GPLA standard on their net earnings and ranked by their asset size using each firm's *Fortune 500* rank. Watts and Zimmerman (p. 126) found results consistent with their hypotheses and reported:

> **This suggests that reduced political and/or tax costs outweigh information production and/or management compensation factors in determining management's position on GPLA only for very large firms. For most other firms, information production costs dominate.**

In a follow-up study, Dhaliwal (1982) argues that in addition to the variables examined by Watts and Zimmerman (1978), the capital structure of a firm may be an important determinant of management's lobbying position on a proposed accounting standard. He argues that a firm's support or opposition to a proposed accounting standard depends upon the firm's debt covenant constraints, the size of the firm and the existence of management compensation plans tied to reported earnings. The evidence adduced by

Dhaliwal to support his argument was drawn from the lobbying positions taken by a sample of 44 unregulated firms in 1977 when the FASB was considering a standard that would have called for interest costs associated with capital expenditures to be capitalised. Prior to this standard, firms in the USA could voluntarily choose, within GAAP, to capitalise or expense interest costs related to capital expenditures. Dhaliwal asserts that capitalising interest would increase the current period's reported net income of affected firms and have a material effect on the contractual agreements (e.g. management compensation plans and debt contracts) in which certain financial accounting variables are key components. On the basis of this assumption, he (p. 259) hypothesises that firms supporting the adoption of capitalisation of interest costs had higher debt/equity ratios, were smaller in terms of the book assets value (the size hypothesis) and had management compensation plans tied to accounting data, than firms opposing capitalisation of interest costs. The results of both the univariate and multivariate tests are consistent with the debt/equity hypothesis and the size hypothesis. However, like Watts and Zimmerman (1978), Dhaliwal's results lend no support to the management compensation hypothesis. However, in a more recent study, Kirsch, Evans and Doupnik (1990) cast some doubt on both the size hypothesis and the debt/equity hypothesis. Kirsch, Evans and

Doupnik examined 72 USA-based multinational companies (MNC) lobbying opinions submitted to the FASB before the issuance of Statement No. 52, "*Foreign Currency Translation*". They argue that because FASB Statement No. 52 permits translation gains and losses to be removed from the income statement to the owners' equity section in the balance sheet, its adoption could have a major impact on both firms' net income and balance sheet values. On the basis of this argument, they evaluated the following hypotheses:

> **H1. Proportionately more firms with accounting based-objectives lobbied the FASB in support of proposed accounting standard SFAS 52 than firms with economic based-objectives.**
>
> **H2. Firms supporting the adoption of SFAS 52, which permits the inclusion of translation gains and losses in equity, had higher debt/equity ratios.**
>
> **H3. Firms supporting the adoption of SFAS 52 had a higher percentage of sales from foreign operations.**
>
> **H4. Firms supporting the adoption of SFAS 52 had a higher percentage of net income from foreign operations.**
>
> **H5. Firms supporting the adoption of SFAS 52 had a higher percentage of net assets from foreign operations.**
>
> **H6. Proportionately more firms supporting SFAS 52 had management compensation plans tied to accounting data.**

The results of the study indicate that the coefficients of the net income variable (hypothesis No. 4) and management compensation variable (hypothesis No. 6) are statistically significant at approximately the 0.05

level, but do not have the predicted signs (i.e. the results of these two hypotheses show a statistically significant *inverse* relationship). The remainder of the variables are not statistically significant at or below the 0.15 level and their signs in relation to those predicted are mixed. These findings can be interpreted as contradicting the Watts and Zimmerman (1978) and Dhaliwal (1982) findings with respect to the size and debt/equity hypotheses. However, these conflicting results might be due, in part or fully, to differences in samples and limitations in the statistical techniques used.

> **SFAS 52 lobbying effort patterns may not be generalizable to other accounting policy interventions. The method employed to classify firms as accounting-based or economic-based may have resulted in some misclassifications. Important relevant variables may have been omitted from the discriminant model. Since the sample was non-random, the results may not be generalizable to other MNCs** (Kirsch, Evans and Doupnik, 1990, p. 169).

As already noted in section 3.1.2, Dechow, Hutton and Sloan (1996) document empirical evidence not only on the relation between firm characteristics and the market reaction to the FASB's 1993 Exposure Draft, but also on the characteristics of firms' lobbying attitudes against this standard. They argue that since this Exposure Draft requires the estimated value of employee stock options to be recognised as an expense, the income and retained earnings of firms affected by this standard would be decreased. Based on this argument, they (pp. 5-6) developed the hypotheses that firms:

[1] in which top executives receive relatively large amounts of compensation in the form of employee stock options are more likely to lobby against mandatory expensing of employee stock options;

[2] that are cash constrained and therefore anticipate requiring additional financing, are more likely to lobby against mandatory expensing of employee stock options; and

[3] facing tight retained-earnings-based debt covenants are more likely to lobby against mandatory expensing of employee stock options.

By comparing the compensation profiles of 310 firms submitting comment letters opposing the 1993 Exposure Draft to a size- and industry-matched control sample, Dechow, Hutton and Sloan (p. 14) found strong support for the hypothesis that firms' top executives are more likely to attempt "to avoid recognising an expense for their option-based compensation". Dechow, Hutton and Sloan (p. 15) also provided a multivariate analysis for a sample of 5,047 firms using logistic regressions and reported that there is "no evidence that lobbying behavior is consistent with ... contracting hypotheses".

3.2.3 Summary

In section 3.2, we have reviewed two categories of study. The first is descriptive and deals with the question of who are likely to lobby against or for accounting standards proposed by the ASC. The results of these studies have generally indicated that corporate lobbying behaviour is highly

observable and played an important role in the reformulation of certain accounting standards in the UK. The second category of study has explained and predicted management lobbying behaviour as a function of firm-specific factors. The evidence adduced by this empirical research suggests that, on average, management's lobbying behaviour on a proposed accounting standard may be explained by the size of the affected firms and the existence of debt covenant constraints written in terms of accounting numbers.

3.3 EVIDENCE ON MANAGEMENT'S PREFERENCES

The strongest evidence consistent with economic consequences of accounting policy choices emerges from studies which attempt to predict why corporate managers prefer some accounting methods over others (Holthausen and Leftwich, 1983, p. 91). Basically, these studies, pioneered by Hagerman and Zmijewski (1979) and known as 'accounting policy choice studies', assess whether accounting policy choices are consistent with the hypotheses proposed by the positive accounting theory. Therefore, this type of research is very closely related to our study, and hence will be reviewed in depth. Our review begins with a chronological examination of accounting choice studies which test the validity of using the costly-contracting and political hypothesis ideas to explain and predict management's accounting policy decisions in developed countries such as

the USA, the UK, Australia and New Zealand. We then review a set of studies which attempt to evaluate the robustness of using the costly-contracting and political cost hypotheses to explain the choice of accounting policies in developing countries such as Taiwan, Nigeria and Saudi Arabia, where a firm's debt and compensation contracts and the political and regulatory environment in which it operates may be very different from those which apply in the USA and other developed countries. Finally, we provide a summary of the findings of the studies reviewed in this section.

In general, accounting policy choice studies use univariate tests and cross-sectional regression models to investigate possible economic consequences in greater detail by attempting to answer questions like: (1) what are the economic consequences of accounting methods which influence a firm's managers to voluntarily adopt some methods over others? And, how does a particular accounting policy choice relate to firms specific characteristics; (2) do firms with a management compensation plan tied to accounting earnings and with larger debt/equity ratios use income-increasing accounting policies?; (3) do firms with larger total assets (or total sales) use income-decreasing accounting methods? The regression models adopted in the accounting choice studies generally use an accounting policy choice represented by a 0/1 dichotomous, 'dummy', variable as the left hand side

(dependent) variable and certain firm specific variables, such as the existence of a management compensation plan tied to accounting earnings, debt/equity ratios and size, as the right hand side (independent) variables.

3.3.1 Accounting Choice Studies in Developed Countries

Hagerman and Zmijewski (1979), hereafter H-Z, examined the ability of contracting and political cost variables to explain the cross-sectional variation in each of the following four accounting policies: (1) inventory methods; (2) depreciation methods; (3) investment tax credit methods; and (4) the amortisation period for past service pension costs. The dependent variables which were assumed to be income-increasing accounting policies include: (1) FIFO, (2) straight-line depreciation, (3) flow-through method of the investment credit, and (4) amortisation periods of more than 30 years for past pension costs. LIFO, accelerated depreciation, the deferral method for the investment tax credit, and amortisation periods less than or equal to 30 years for past pension costs, are considered to be income-decreasing accounting policies. The contracting and political cost variables which were used as independent variables in the H-Z probit analysis include:

(1). Size: Based on the work of Jensen and Meckling (1976) and Watts and Zimmerman (1978), H-Z hypothesise that because the political costs firms bear are a function of their size, managers of larger firms are more likely to

choose an income-decreasing accounting policy.

(2) Risk: H-Z argue that firms with relatively high systematic risk will appear to earn higher returns to compensate themselves for the additional systematic risk they bear. Therefore, they hypothesise that riskier firms are more likely to be subject to political costs, and hence their managers are more likely to choose income-decreasing accounting policies.

(3) Capital intensity: H-Z also suggest that capital intensive firms will appear to earn higher profits than labour intensive firms because the total cost of capital is not a recognised expense in computing net income. Therefore, they hypothesise that these firms are more likely to be subject to political costs and are more likely to reduce their reported earnings.

(4) Concentration ratio: H-Z argue that because managers of firms earning monopoly rents and reporting them will increase the possibility of anti-trust litigation and encourage entry by other firms into the industry, they are more likely to choose accounting methods which reduce reported income to forestall entry as well as anti-trust action.

(5). Earnings-based compensation plan: Based on the work of Watts and Zimmerman (1978), H-Z argue that the existence of a management compensation plan tied to accounting earnings is likely to be an important determinant of management's accounting policy decisions. They hypothesise

that managers of firms with an earnings-based compensation plan are more likely to use income-increasing accounting policies.

The sample used consisted of 300 non-regulated USA firms that disclosed the choice of the four accounting methods in their 1975 financial reports. The size of these 300 firms was measured by both sales and total assets. The beta coefficient from the market model and the gross fixed assets/sales ratio were used as proxies for the risk and capital intensity, respectively. The concentration ratio was used as a proxy variable for the ability of a firm to earn monopoly rents and was defined as the percentage of total industry sales made by the largest eight firms in the industry. H-Z also recognised the significant effect of tax rates on inventory method choice and hence included the ratio of income taxes paid to earnings before taxes as an independent variable when investigating this choice.

The results of the Chi-square tests indicate that their model is statistically significant at the 1% level for depreciation, the 5% level for inventory, and the 10% level for the investment tax credit and past service amortisation methods. However, the independent variables are not significant in every model. The coefficients of the depreciation model show that the size and beta variables are significant at the 5% level and that the capital intensity and earnings-based compensation plan are significant at the

10% level, but the coefficient associated with the concentration ratio variable is not significant, although it has the predicted direction. The results of the model describing inventory choice show that the signs of the size, capital intensity and concentration ratio coefficients are as hypothesised, but only the capital intensity and concentration ratio variables are significant; and then only at the 10% level. The results of the choice between the flow-through method and the deferred method for investment tax credit indicate that the size and capital intensity variables are the only significant variables, but only at the 10% level, although all the coefficients have the predicted signs. Finally, the results of the past service amortisation model show that the only significant variable is the earnings-based compensation plan, although it is significant only at the 10% level. However, the signs of the remaining coefficients are as predicted.

Zmijewski and Hagerman (1981) argue that the mixed results of their 1979 study emerged from their implicit assumption that each accounting policy choice is made independently. Therefore, in their 1981 follow up study, they impose the assumption that managers choose accounting policies on a portfolio basis, and hypothesise that if a firm is politically sensitive but has no earnings-based compensation plan, its managers are more likely to choose a portfolio of accounting methods that would minimise the present

value of the reported earnings. And, if the firm has a compensation plan but is not politically sensitive, its managers are more likely to choose a portfolio of accounting methods that would maximise the present value of the reported earnings. Because many firms may be both politically sensitive and also have compensation plans, Zmijewski and Hagerman argue that managers may not choose an extreme portfolio of accounting methods (i.e. all the methods in the portfolio increase earnings or all the methods decrease earnings); rather, they may strike a trade-off between the political costs and contracting effects of earnings, thereby constructing an "optimal" income strategy. Based on this and some other assumptions[30], Zmijewski and Hagerman used the four accounting methods examined in their 1979 study to develop a variety of alternative income strategies. They (p. 139) hypothesise that if the "proposed income strategies are representative of management's income strategies", then the following equation "would be able to classify firms according to their choice of a particular strategy":

$$\text{STRATEGY}i = \alpha + \beta_1 \text{BONUS} + \beta_2 \text{CONST RATIO} + \beta_3 \text{BETA} + \beta_4 \text{SIZE} + \beta_5 \text{CAP INTSTY} + \beta_6 \text{D/E RATIO} + w,$$

where:

STRATEGYi = Income strategy (i= 5, 7, or 9),

[30] **For a description of these assumptions and how Zmijewski and Hagerman developed their dependent variable, STRATEGYi, see Watts and Zimmerman (1986, pp. 249-253).**

BONUS = 1 if there is a management profit-sharing compensation plan; 0 if there is no profit-sharing plan,

CONST RATIO = The percentage of total industry sales made by the largest eight companies in the industry,

BETA = Systematic risk,

SIZE = The natural logarithm of net sales,

CAP INTSTY = Gross fixed assets divided by net sales,

D/E RATIO = Total debt divided by total assets,

w = Error term.

To test this hypothesis, Zmijewski and Hagerman used the same 300 firms they used in their 1979 study. They also used probit analysis to estimate the effects of the independent variables on the portfolio of accounting policy choices. Their results indicate that management compensation plans, concentration ratio, size, and the total debt/total assets ratio have a significant impact on the choice of a firm's income strategy. This evidence motivates Zmijewski and Hagerman (p. 147) to suggest that firms do in fact choose an overall income strategy as hypothesised.

Deakin (1979), Dhaliwal (1980) and Lilien and Pastena (1982) examined the effect of the firm's specific characteristics on the choice management makes between the full cost and the successful-efforts methods of accounting for oil exploration costs. As already noted in chapter two

(section 2.2.1), before the issuance of the FASB Statement No. 19, "*Financial Accounting and Reporting by Oil and Gas Producing Companies*", mandating the adoption of the successful-efforts method, USA oil and gas companies voluntarily used either the successful-efforts method or the full-cost method in their primary financial statements. Firms using the full cost method argued that the mandated switch from the full-cost method to the successful-efforts method would have adverse effects on their ability to raise capital, expand exploration activities and compete with other companies. Based on this argument, Deakin (1979, p. 726) hypothesises that management's preferences for the choice between the full cost or successful-efforts methods depend on "aggressiveness in exploration, perceived need for access to public markets, size, age of company and relative extent of development drilling". These variables are tested by using multiple discriminant analysis and a dichotomous classification test on a sample of 53 oil and gas companies. The Chi-square test rejects the null hypothesis that the model cannot distinguish full cost firms from successful-efforts firms at the 1% level. However, the overall results indicate that only the debt/revenue ratio, age of company, and ratio of capital expenditure to revenues are statistically significant at the 5% level. That is, firms using the full cost method are more highly leveraged, smaller and spend more per

revenue dollar on capital investments than do firms using the successful-efforts method.

Dhaliwal (1980) focuses on the ability of the firm's capital structure to explain management's preferences for the choice between the full-cost and the successful-efforts methods. As already noted in chapter two (section 2.2.1), it has been argued that firms using the full-cost method would report larger and less volatile earnings, higher net assets and a higher shareholders' equity than companies using the successful-efforts method. Dhaliwal, therefore, hypothesises that managers of highly leveraged firms would prefer the full-cost method to the successful-efforts method. This hypothesis is tested by using the matched-pairs *t*-test. After controlling for the effect of firm size, Dhaliwal (p. 82) concludes that "the average debt-to-equity ratio of firms using the full-cost method is significantly greater than that of firms using the successful-efforts method". This finding is consistent with the debt/equity hypothesis that the higher the debt/equity ratio, the more likely the managers are to use income-increasing accounting policies.

Lilien and Pastena (1982) extend the work of Deakin and Dhaliwal and examine the full-cost and successful-efforts methods in more detail. They point out that prior to the SEC's promulgation of Accounting Series

Releases (ASR)[31] Nos. 253 and 258 in August 1978, there was a wide diversity of choices[32] managers of oil and gas firms could use to maximise or minimise reported earnings. However, these two new rules required oil and gas firms to adjust their retained earnings retrospectively to reflect what they would have been if the new rules had been in effect all along. These retained earnings adjustments allow Lilien and Pastena to measure the extent to which managers of oil and gas firms maximised or minimised reported earnings prior to the release of ASR 253 and ASR 258. They hypothesise that: (1) size and age are positively correlated with the choice of successful-efforts and intramethod choices which minimise reported earnings, and (2) leverage and exploration risk are positively correlated with the selection of full cost and intramethod choices which maximise reported earnings. Revenues and the debt/equity ratio are used to test the size hypothesis and the leverage hypothesis, respectively. The dry wells/total wells ratio is used to proxy for firms' exploration risk. The sample consists of 102 firms which adjusted their 1978 retained earnings so as to conform with the requirements of ASR 253 or ASR 258. The results of the three statistical techniques used- probit, regression and discriminant analysis- indicate that the four variables

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[31] ASR 253 and 258 overturned FASB Statement No 19 and specified particular versions of successful-efforts and full-cost.

[32] See Lilien and Pastena (1982, pp. 148-151, Tables 1 and 2) for a list of these choices.

are statistically significant and the coefficients have the signs hypothesised.

Bowen, Noreen and Lacey (1981) provide further evidence to support the position that size and leverage affect managers' choices of accounting policies. They investigate management's preferences for the choice between capitalising or expensing interest costs associated with capital expenditures. Before 1974, managers of non-regulated USA firms were free to choose either method of accounting for such interest costs. In 1974, the SEC issued ASR 163 which imposed a moratorium on firms adopting interest capitalisation. Bowen, Noreen and Lacey examine the effect of management compensation plans, debt contract, and political costs on managers' decisions to capitalise or expense interest costs prior to the SEC moratorium. They hypothesise that because interest capitalisation increases current period reported earnings, managers of firms with bonus plans are more likely to use interest capitalisation. Three hypotheses about debt contracts are also developed and tested. They hypothesise that the propensity to capitalise interest is greater (1) for firms with a low ratio of inventory of payable funds, (2) for firms with a low ratio of current earnings to interest expenses, and (3) for firms with a low ratio of net tangible assets to funded long-term debt. In assessing the effects of political costs, Bowen, Noreen and Lacey test two further hypotheses. The first is based on the

results of Watts and Zimmerman (1979) that the largest firms in the oil and gas industry are less likely to capitalise interest than other firms. The second hypothesis predicts that larger firms in *all* industries are less likely to use interest capitalisation. To test these six hypotheses, Bowen, Noreen and Lacey draw a sample of 91 unregulated-firms that did, and did not, capitalise interest in 1974, and use a matched-pairs design to control for the possible correlation between industry membership and interest capitalisation. The univariate tests of the bonus plan hypothesis find an association between the presence of a bonus plan and the method chosen to account for interest costs. Furthermore, the univariate tests of the three hypotheses relating to debt contracts are all significant. The results indicate that firms capitalising interest costs have a small inventory of cash from which to finance dividends payments (significant at the 2% level), lower current income to interest expense ratios (significant at the 6% level), and lower net tangible assets to funded long-term debt ratios (significant at the 0.1% level). The results of the univariate tests on the size hypotheses indicate that oil and gas firms with larger sales are unlikely to capitalise interest (significant at the 1% level), but that larger firms in *all* industries are more likely to use interest capitalisation (significant at the 10% level, but in the wrong direction). Bowen, Noreen and Lacey also apply a probit analysis to explain the choice

of capitalising or not capitalising interest costs and the results are consistent with the univariate tests.

Using the results of Williamson (1964 and 1967), amongst others, Dhaliwal, Salamon and Smith (1982) introduce the effect of ownership control status of firms into the choice of accounting policies. They test this new factor by examining whether or not owner-controlled and manager-controlled firms use different depreciation methods for reporting purposes. Their hypothesis predicts that manager-controlled firms are more likely than owner-controlled firms to adopt depreciation methods that will shift reported earnings from later periods to current periods (i.e. straight-line depreciation). This hypothesis is based on the belief that: (1) high insider ownership reduces the importance of accounting numbers in compensation contracting, and hence managers of owner-controlled firms are less likely than managers of manager-controlled firms to adopt accounting methods which increase the present value of their compensation packages, and (2) managers of manager-controlled firms have a pecuniary interest in reducing the probability of employment termination as a result of reporting poor performance. Dhaliwal, Salamon and Smith test their ownership control hypothesis by using 42 manager-controlled firms and 41 owner-controlled firms which adopted accelerated depreciation for tax reporting purposes in 1962. Firms are

classified as owner-controlled if one party owns 20 percent or more of the voting stock, or if one party owns 10 percent or more of the voting stock and also is a member of the board of directors. Firms are classified as manager-controlled if no one party controls more than 5 percent of the voting stock. A probit analysis is used with the dependent variable being 1 if the firm used the accelerated depreciation method for tax purposes, and the straight-line method for reporting purposes, and 0 if it used the accelerated depreciation method for both tax and financial reporting purposes. The independent variables are total assets, debt/equity ratio, and a firm control variable that takes the value 0 if the firm is owner-controlled and 1 if it is manager-controlled. The Chi-square test indicates that the model is statistically significant at the 1% level. The coefficients of the size and debt/equity variables have the hypothesised signs and are significant at the 15% and 1% levels, respectively. The coefficient for the firm control variable also has the predicted positive sign and is statistically significant at the 3% level.

In chapter two (section 2.2.1) we discussed some aspects of the debate which accompanied the development of some accounting standards in the USA and noted in particular the views which claim that the FASB Statement No. 19, "*Financial Accounting and Reporting by Oil and Gas Producing Companies*", would have undesirable effects on the ability of

exploration-oriented companies to raise capital, expand exploration activities and compete with other companies. Similarly, it was claimed that the FASB Statement No. 2, *Accounting for Research and Development Costs*, which was issued in 1974 and required firms to expense research and development (R&D) costs in the year incurred, would force firms which were capitalising R&D to reduce their expenditure on R&D. Empirical evidence, however, lends no support to these claims[33]. This evidence motivated accounting researchers to investigate whether the political and contracting costs of firms are the real reasons behind the choice between capitalising or not capitalising R&D expenditures. For example, Daley and Vigeland (1983), in a study of 135 capitalising firms and 178 expensing firms that reported research and development expenditures in 1972, recognise that capitalising R&D expenditures increases current reported income and retained earnings. Therefore, following the contracting and political cost hypotheses, they hypothesise that firms which capitalised R&D had: (1) higher ratios of private debt to total tangible assets, (2) higher ratios of public debt to total tangible assets, (3) higher ratios of cash dividends to unrestricted retained earnings, (4) lower ratios of income before extraordinary items to interest expense, and (5) small sales. They regress the research and development

[33] See, for example, Dukes, Dyckman, and Elliott (1980).

method choice (one for capitalising firms, zero for expensing firms) on these five factors and find that all coefficients have the hypothesised signs, and all but the coefficient of the ratio of cash dividends to unrestricted retained earnings variable are significant at the 5% level.

Two other controversial accounting standards which have been the subject of academic investigation are SSAP 21, *Accounting for Lease and Hire Purchase Contracts*, and FASB Statement No. 13, *Capitalization of Leases*. Ashton (1985) examined economic factors that affected UK firms' choices in accounting for leases prior to the implementation of SSAP 21 in 1984. He notes that lease capitalisation increases book asset and liability values and typically reduces reported income and retained earnings. Hence, following Hagerman and Zmijewski (1979), he regresses the lease accounting choice (one for operating approach, zero for capitalisation approach) on firm size, concentration ratio, capital intensity ratio, beta, and whether there is a management compensation plan tied to accounting earnings. He estimates his model on a sample of 44 UK firms included in the *Survey of Published Accounts, 1983/84*. Applying Ordinary Least Squares (OLS) and probit analyses, Ashton (p. 237) reports that "all the equations showed the contrary; extremely small coefficients of determination were found in all cases and none of the coefficients were significant". However,

in a similar United States study, El-Gazzar, Lilien and Pastena (1986), using a sample of 134 USA firms, provide empirical evidence to support the position that political costs, leverage effects, and management bonus incentive variables do explain management's choices in accounting for leases prior to the implementation of FASB Statement No. 13[34], *"Capitalization of Leases"* in 1976. This new accounting standard forced lessees to capitalise many leases that were formerly classified as operating leases. El-Gazzar, Lilien and Pastena (1986) argue that this standard is expected to increase lessees' book assets and liabilities values and to reduce their reported income and retained earnings. Hence, using the positive accounting theory arguments, they hypothesise that firms (1) with the highest debt/equity ratios after capitalisation, and (2) with bonus plans based on income after interest expenses are more likely to use the operating lease approach for lease accounting prior to the proclamation of FASB Statement No. 13. They also test two hypotheses on political costs. One is that larger firms are more likely to report lower earnings by capitalising leases to reduce their political costs. The second hypothesis is that firms with high effective tax rates are more likely to capitalise their lease obligations. The financial data necessary for the determination of firms that did and did not

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[34] The requirements of FASB Statement No. 13 are essentially the same as those in SSAP 21.

capitalise leases prior to the adoption of FASB Statement No. 13 and for the calculation of the independent variables, were obtained from the 1976 financial statements of 134 lessees. The results of probit analyses indicate that the operating method is positively correlated at the 1% significance level with both the debt/equity ratio and the existence of bonus plans based on income after interest expenses. The empirical results also show that the effective tax rate is negatively correlated (1% significance level) with choice of the operating lease approach, but do not support the size hypothesis when sales are used to surrogate for political costs.

The issue of accounting for foreign currency translation has also been an area of considerable controversy in the United States, leading to a number of attempts by the FASB to resolve the problems associated with the diverse foreign currency translation methods used by multinational companies. In 1975, the FASB issued Statement No. 8 which required multinational companies to immediately include all translation gains and losses in current income. Although this standard was strongly criticised on a number of grounds, the primary concern related to the heightened volatility in reported earnings which it implied. In response to such criticisms, the FASB issued Statement No. 52 in 1981. The main thrust of this standard is that it allowed multinational companies to directly report gains or losses on

foreign currency translation in owners' equity. Ayres (1986) examined the economic characteristics of firms that adopted FASB Statement No. 52 earlier than was formally required. He hypothesised that as the requirements of FASB Statement No. 52 would increase reported income, firms that voluntarily adopted the standard in 1981 were likely to be smaller, have less stock owned by directors and officers, have a smaller percentage growth in pre-adoption earnings, and be more contractually constrained on dividend payments and interest coverage ratios than later adopters. The results of the logistic model using a sample of 103 firms adopting in 1981, and 129 firms adopting in 1982 or 1983, show that all the coefficients of the independent variables have the hypothesised signs and are statistically significant at the 5% level or less. In a similar study, Ndubizu (1990) also observed that early adopters of FASB Statement No. 52 tended to be smaller, had a smaller earnings growth rate in the pre-adoption period, had higher dividend constraints, and had smaller changes in earnings volatility than later adopters..

Wong (1988) notes that the accounting methods used for reporting export tax credits by New Zealand companies have been continually debated in New Zealand, principally because of their potential economic consequences. According to the New Zealand Income Tax Act 1976,

exporters of goods are entitled to tax credits for their performance in generating foreign currency. Two accounting methods are available for reporting these export tax credits in financial statements. The first is the 'tax reduction' method whereby the export tax credits are offset against the income tax expense. The second is the 'credit to sales' method whereby the export tax credits are added to sales, leaving the income tax payable at the gross amount. Wong hypothesises that as the 'credit to sales' method, compared to the tax reduction method, increases pre-tax income and, hence, increases the reported tax rate and interest coverage, this method is more likely to be used by firms which: (1) want to raise their reported tax rates to a level which minimises public criticism toward them for receiving material amounts of export tax credits, and (2) are closer to their interest coverage constraints. More specifically, Wong hypothesises that the 'credit to sales' method is more likely to be used by firms with low reported tax rates, with large sales figures[35], with large amounts of export tax credits relative to their reported earnings, and with high net income before interest and tax / interest ratios. The results of the Mann-Whitney *U* test and the *t* test using a sample

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[35] Wong (p. 41) notes that "while the 'credit to sales' method may benefit low tax rate, politically sensitive firms through an increased reported tax rate, it also increases sales which could increase political costs because of increased visibility. Managers must tradeoff the costs and benefits of this method. However, I expect the higher political costs associated with increased size to be outweighed by the benefits from an increased reported tax rate."

of 29 firms that applied the 'credit to sales' method in 1984 and 66 firms that adopted a different method, reveal that the differences in means of the four independent variables have the hypothesised signs and are statistically significant at the 5% level or less. Wong also runs a logit model and finds that all the coefficients have the predicted signs, with both the reported tax rate and size coefficients being statistically significant at conventional levels.

Trombley (1989) extends positive accounting research to the selection of an adoption date for FASB Statement No. 86, *"Accounting for the Costs of Computer Software to be Sold, Leased or Otherwise Marketed"*, which required that certain costs of developing software for sale be capitalised starting from January 1, 1986. Prior to this time, most computer firms had been expensing software development costs as they were incurred. Trombley (p. 529) therefore hypothesises that as this standard was an "income-increasing accounting choice", early-adopting firms (1) are smaller than later-adopting firms, and (2) their financial statements are audited by CPA firms with a stated preference for capitalisation of software costs. The second hypothesis is reasoned on the ground that firms in the software industry are generally small and have less sophisticated financial management; and as a consequence, they may rely on their auditors for advice about the adoption of new accounting standards. The sample consists

of 53 firms, of which 14 opted for early adoption of FASB Statement No. 86. The size of firms in the sample is measured by sales, while the position of auditors is determined by examining letters of comment received by the FASB during the exposure draft period. In addition to these two independent variables, proxies for management compensation plans, debt contracting and percentage of ownership by directors and officers are also included in the final model as control variables. The results of the *t* tests of differences in means for the five explanatory variables indicate that they have the hypothesised signs and are statistically significant at the 5% level or better for the size, preferences of auditors, debt contracting, and ownership percentage variables. Trombley also runs a multivariate model and finds that the results of the OLS regression are generally consistent with the findings of the *t* tests.

Using the insider ownership hypothesis developed by Dhaliwal, Salamon and Smith (1982), Dyl (1989) and Niehaus (1989) examined the effect of the firm's ownership structure on its management's preference for the choice between the last-in-first-out (LIFO) and the first-in-first-out (FIFO) inventory valuation methods. They argue that, on the one hand, the

use of FIFO rather than LIFO generally results in lower cash flows[36] and hence imposes a significant agency cost on the firm's owners in the form of a reduction in the market value of the firm's shares. Therefore, it is expected that the firm's owners are more likely to prefer the use of LIFO instead of FIFO for inventory valuation. On the other hand, if the firm has a management bonus plan and its compensation committee does not adjust for the inventory method chosen, then the firm's managers are more likely to prefer the use of FIFO because it generally produces higher reported earnings than does LIFO. Hence, if LIFO is the tax minimising method, the inventory method choice gives rise to a conflict of interest. Dyl (1989, p. 142) hypothesises that managers of widely held firms are more likely to use the FIFO inventory valuation method than are the managers of closely held firms because "in a widely held firm no single owner or co-ordinated group of owners is likely to have both the ability and sufficient economic incentives to assiduously monitor the behavior of the firm's managers". Unlike Dhaliwal, Salamon and Smith (1982)[37], Dyl measures a firm's ownership concentration as the percentage of the firm's shares owned by the single largest stockholder. He finds that the difference between the mean

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[36] That is because FIFO generally results in higher reported earnings and hence, higher tax expense payments than does LIFO.

[37] See page 109.

values for a group of 100 firms which used the FIFO method in their 1981 financial statements and for a group of 213 firms which used the LIFO method, is as hypothesised, but it is statistically significant only at the 10% level. However, after controlling for the size and debt/equity ratio variables, Dyl shows that in a multivariate discriminant analysis, the ownership concentration variable becomes statistically significant at the 5% level. Firm size, as measured by total assets, is also found to be statistically significant at the 1% level, suggesting that it is the most important determinant of the inventory method choice. The debt/equity ratio variable, however, is not significant although it has the predicted sign. In a similar study, Niehaus (1989, p. 283) also provides further empirical support for the ownership concentration hypothesis and concludes that "the probability of choosing LIFO initially decreases as managerial ownership increases".

Nathan and Dunne (1991) provide evidence of underlying contracting cost determinants in the choice of the accounting treatment for business combinations. They argue that when the price paid for a target firm exceeds the book value of the net assets, (1) the pooling of interests method yields a higher net income than does the purchase method, and (2) the use of the purchase method yields an opportunity to write up the target's assets to market value; and hence, management of acquiring firms considers these

economic consequences of the pooling-purchase choice when structuring an acquisition. Nathan and Dunne used a logistic regression model to analyse a sample of 134 stock-for-stock acquisitions between 1963 and 1985. The results indicate that the existence of acquirer leverage-based debt covenants, and acquirer leverage variables have the predicted signs and are significant at the 5% level, suggesting that acquiring firms with debt covenants restricting leverage and with closeness to debt covenant violations prefer purchase to pooling to benefit from the write-up of the target's assets.

Lemke and Page (1992) seek to determine economic and financial factors that drive certain UK companies to comply or not to comply with SSAP 16, *'Current Cost Accounting'*. This standard calls for a complete profit and loss account and complete balance sheet on a current cost basis that may be presented as supplementary information with the traditional financial statements based on historical costs. Compliance with this standard was required for years beginning on or after January 1, 1980. Lemke and Page (p. 89) hypothesise that as the "three so-called 'operating adjustments' usually resulted in CCA reporting lower net income than historical cost accounting (HCA)", compliance with SSAP 16: (1) is positively correlated with firms' political visibility, and (2) is negatively correlated with firm's debt/equity ratios and dividend payment ratios. They also expect that as the

depreciation and cost of sales adjustments result in a lower income figure, firms with higher fixed assets/total assets ratios and inventory/total assets ratios are more likely to comply with SSAP 16. To tests these hypotheses, Lemke and Page apply univariate tests on a sample of 154 firms that complied with SSAP 16 in 1983 and prior years and 51 firms that did not comply with the standard during the same period. The overall results indicate highly significant differences between means (at the 1% level) for the variables sales, debt/equity ratio, dividend payment ratio, and fixed assets/total assets ratio. In addition to the univariate tests, Lemke and Page use their hypothesised variables in a logit model to explain what drives certain UK firms to voluntarily adopt current cost accounting. The results confirm the univariate tests.

Following specific suggestions by Watts and Zimmerman (1990), Christie (1990), and Leftwich (1990), attention has recently focused on two major issues confounding research into accounting policy choices. The first of these involves the distinction between managerial opportunism (using accounting policies to transfer wealth to managers from debt- and share-holders) and contractual efficiency (using accounting policies to maximise the value of the firm) as determinants of accounting policy choice. As Watts and Zimmerman (1990, p.143) noted, this problem produces model

specification errors:

> **Implicitly researchers are holding constant the firm's investment opportunity set and contracts and interpret the compensation plan variable as managerial opportunism. But, the debt and political variables can represent both efficiency and opportunism. Thus, the model is misspecified.**

However, it is widely recognised that distinguishing between managerial opportunism and efficiency reasons is difficult in both theory and empirical work (Christie and Zimmerman, 1994; Smith, 1993; Holthausen, 1990). For example, Smith (1993, pp. 290-291) describes this difficulty and states:

> **Even in theory, it is difficult to distinguish between opportunism and contracting efficiency as determinants of accounting policy choice. Given positive contracting costs, there will be a positive efficient amount of opportunism. Distinguishing between opportunism and efficiency is difficult in empirical work also. For example, a significant relation between accounting policy choice and leverage could indicate that managers of firms with high leverage act opportunistically in selecting accounting techniques to reduce costs imposed by constraints in debt covenants. Alternatively, it could indicate that corporations for which a particular set of accounting techniques is efficient also tend to be those firms for which high leverage is efficient.**

Nevertheless, recent research tends to develop efficiency hypotheses and assumes that managers adopt accounting policies that maximise the value of their firms. For example, Mazay, Wilkins and Zimmer (1993) analyse the accounting policy choice of listed Australian firms in the year 1984 in which the Australian standard on investments in associated companies first took effect. This standard required the use of the cost method in the primary financial statements and the provision of supplementary equity accounting

disclosures. Mazay, Wilkins and Zimmer observe that in 1984 there was a high frequency of non-compliance which took the form of either using the equity method in the investor company's primary financial statements, or adopting the cost method without supplementary equity accounting disclosures. They argue that the use of the equity method by the investor companies is determined by contractual efficiency and hypothesise that the choice of the equity method is determined by (1) the extent of ownership of associates by an investor company, (2) the number of associates reported by the investor, (3) the proportion of investor assets attributable to investments in associates, (4) whether the associates are listed on a stock exchange, and (5) whether the investor firm guarantees the debts of its associates. To test these hypotheses, the authors selected a sample of 20 firms which implemented the equity method in their 1984 primary financial statements, and 27 firms which used the cost method only. Applying a multivariate analysis, Mazay, Wilkins and Zimmer (p. 54) conclude that "the choice to adopt equity accounting in Australia in 1984 is positively related to the materiality of investments in associates and the existence of guarantees and is negatively related to the proportion of listed associates". These results support their premise that the use of the equity method by the investor

companies is determined by contractual efficiency[38].

The second major issue confronting accounting researchers in the accounting choice literature is the difficulty of observing both contracting costs and political costs; and as a consequence, researchers tend to rely upon proxies for these costs. Almost all recent studies are designed to make steps towards solving this problem. In particular, these studies focus on examining the nature of costs associated with the violation of accounting-based covenants in debt contracts [e.g. DeFond and Jiambalvo (1994); Sweeney (1994); Smith (1993); Beneish and Press (1993); and Chen and Wei (1993)], and the appropriateness of using the debt/equity ratio as a proxy for the expected costs associated with the violation of accounting-based debt covenants [e.g. Duke, Franz and Hunt (1995); El-Gazzar and Pastena (1990); and Duke and Hunt (1990)]. Since these recent studies are partially relevant to our present study, it may be worthwhile summarising the evidence they report:

(1) Because renegotiations are less costly in private debt contracts, technical defaults occur more frequently in private debt contracts than in public debt

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[38] Mazay, Wilkins and Zimmer (1993) also recognise that the managers of an investor company may choose the method of accounting for its associates to opportunistically transfer wealth to themselves, and hence hypothesise that equity accounting is more likely the higher the ratio of debt to assets, and the smaller the investor firm. Their findings do not support these opportunistic hypotheses.

contracts;

(2) the covenants of net worth, working capital, leverage, and interest coverage are the most frequently violated of all covenants;

(3) firms frequently violate more than one covenant;

(4) the violation of covenant constraints generally results from the disclosure of poor operating performance rather than changes in accounting standards;

(5) the debt/equity ratio is a valid proxy for the costs of leverage associated with changes in accounting policies; and

(6) there is a significant relation between the debt/equity ratio and the tightness of the actual covenant.

3.3.2 Accounting Choice Studies in Developing Countries

The positive accounting theory, as an approach for the determination of financial accounting standards, emerged first in the United States (Watts and Zimmerman, 1978), but increasingly has attracted a great deal of attention, not only in the United States, but also in many developed countries. In this context, a major issue that frequently arises is whether the hypotheses of the positive accounting theory are valid in less developed countries, where firms' contractual agreements and the political and regulatory environment in which they operate may be very different from that of most firms in developed countries and on which the empirical

research reviewed above is founded. Examples of studies which have addressed this issue include Ariyo (1988), Shiue (1989), and Tawfik and Kadous (1991).

Ariyo (1988) examined three economic variables hypothesised to be related to the choice of depreciation methods by public companies in Nigeria. These included the ratio of long-term debt to total assets (to test the leverage hypothesis), and company size and capital intensity (to test the political cost hypotheses). Following Hagerman and Zmijewski (1979), Ariyo used both sales and assets as a measure for firm size and the gross fixed assets/sales ratio for capital intensity. The sample consisted of 47 firms, of which 13 used the accelerated depreciation method and, hence, could be classified as being in the income-decreasing category. Applying a step-wise regression technique, Ariyo found that leverage and capital intensity account for about 50% of total variation in the choice of depreciation methods by public firms in Nigeria. However, of the four variables examined, all were significant (at the 95% confidence level) in the univariate test. Interestingly, the results of the univariate test indicate that highly leveraged firms are more likely to use an income-decreasing depreciation method (the accelerated method), and that firms with higher sales are more likely to use an income-increasing depreciation method (the

straight-line method). These findings are in contrast with the common findings reported in the applied positive accounting literature. Ariyo attributed these "unusual" findings to the nature of the Nigerian environment. He (pp. 95-96) stated:

> **The reasons for this "unusual" finding...are mainly environment-related...For example, the political cost of size (as measured by sales) in the Nigerian environment is virtually zero, given the absence of the usual agitation by lobbyists for wealth transfers for which other countries (specially the United States) are noted. Rather, corporate managers have an economic incentive to declare higher income with higher sales. This allows them to pay higher dividends and, hence, avert a possible decline in favorable proxies and in the weakening of their personal position...With respect to leverage,... discussions with several bank loan officers indicate that, in the Nigerian environment, banks are concerned mainly with cash flow generated from operations. Hence, the adoption of an income-reducing depreciation method enables the debtor-firm to report higher cash flow figures (measured as net income plus depreciation) than those employing the income-increasing depreciation method, given a positive tax rate.**

Shiue (1989) addresses the issue of the applicability of the positive accounting theory's implications to Taiwan by examining the relationship between size and leverage and firms' reported income strategies. He identified two accounting policy choices: depreciation (straight-line versus accelerated), and inventory (moving-average and/or FIFO versus weighted-average). The straight-line depreciation method and the moving-average (and/or FIFO) method are treated as income-increasing policies and the accelerated and weighted-average methods are treated as income-decreasing policies. After drawing a sample of 113 firms and adopting Zmijewski and

Hagerman (1981)'s income strategy approach, Shiue (p. 91) found that

> **There exists no relationship between Taiwanese corporations selecting accounting alternatives that increased or decreased reported earnings and the size of corporations as measured by net sales...Again the researcher failed to reject... the alternative hypothesis that firms with higher leverage tend to select accounting standards that increase reported earnings,**

and (p. 96) concluded "that some implications of positive theory of accounting simply do not apply to Taiwan".

Tawfik and Kadous (1991)[39], hereafter T-K, are the first to empirically test the validity of applying the positive accounting theory in Saudi Arabia. They argue that managers of Saudi companies are influenced by environmental factors rather than economic motives in choosing among alternative accounting methods. Six economic motives and three environmental variables were examined to explain the use of the following three accounting policies by management of Saudi firms during the 1986-89 period: (1) inventory methods (cost versus the lower of cost or market); (2)

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[39] We would like to note that we have found two versions of this study; one is written in Arabic and the other is written in English. Our review is mainly based on the Arabic version because it has been published; nevertheless, the identifiable similarities and differences between the two versions of the study will be stated when it is applicable. Also, we would like to emphasise that we are not aware of any other empirical study that has attempted to investigate the economic consequences of accounting standards applied by Saudi Companies, or to contribute to the development of the positive accounting theory in Saudi Arabia. However, we do acknowledge that Al-Rwita (1993) *in part* address these issues by conducting a case study on five Saudi banking institutions. He (p.41) used the agency theory framework to investigate "the implications of ownership structure on firm governance structure, management behavior, and firm performance". His findings, which may be relevant to our study, are that management of Saudi banks with large insider ownership are more likely to be constrained to pursue goals that are in the best interest of shareholders. It may also be worth noting that we have read two theoretical papers written in Arabic by Serag (1989) and Alameen (1992). These two papers provide a typical overview about accounting theories, including the positive accounting theory.

research and development methods (capitalising versus expensing); and (3) Zakat methods (distributing versus expensing)[40]. T-K treated the cost, capitalising and distributing methods as income-increasing accounting policies and the lower of cost or market method and expensing research and development and Zakat as income-decreasing policies. Variations in these three accounting policies were identified by verifying the 1986-1989 published annual reports of 28 Saudi companies. These financial reports were also used to calculate the six economic motives and the three environmental variables which served as the independent variables in T-K's model. These nine independent variables were classified into three categories:

(1) Political cost variables. T-K hypothesise that a Saudi company was in danger of suffering political costs during the 1986-1989 period if it was large, was highly capital intensive, was operating in a highly concentrated industry, and if a high percentage of its outstanding shares was owned by the Saudi Government. Managers of firms with these characteristics are hypothesised to use income-decreasing accounting methods. T-K (p. 122) measured firm size as "the average of total assets during the study period

[40] **For a detailed description of the Zakat methods, see sections (4.3.1 and 6.1.2.3).**

[1986-1989]", capital intensity ratio as "the average of net fixed assets to total assets during the study period", concentration ratio as "the average of the total sales made by the largest two firms in an industry to total sales made by all firms in the industry during the study period", and governmental stock ratio as "the percentage of shares owned by the Government". In addition to these four political variables, T-K (p. 109) also classified and used the variable "earnings direction" as a political cost variable. They (p. 122) measured this variable[41] as "change in earnings for each firm during the study period (3= constant increase in reported profits, or constant decrease in reported losses; 2= insignificant change in earnings; 1= if a firm reported a profit and loss during the study period; 0= constant decrease in reported profits, or constant increase in reported losses)".

(2) Contracting cost variable. Based on the work of Dhaliwal (1980), T-K hypothesise that Saudi firms with high debt/equity ratios are more likely to use income-increasing accounting policies. They (p. 122) measured this variable as "the average of external debts to total assets during the study period".

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[41] This variable as well as the governmental stock ratio variable were dropped in the English version, creating the main difference between the two versions of T-K's study. Nevertheless, the overall results of the English version are consistent with the findings of the Arabic version.

(3) Environmental variables. T-K developed three environment-oriented variables to explain accounting policy decisions in Saudi Arabia. They hypothesise that a Saudi firm is more likely to adopt accounting methods (1) that represent its managers' conservative attitude towards accounting policies, (2) that are commonly used by the industry in which it operates, and (3) that are preferred by its auditor. T-K (p. 11)[42] computed the "degree of conservatism" variable as "the percentage of the number of conservative accounting policies to total number of accounting policies as reported by each firm in its annual reports (1986-1989)", and the "common practice" variable as "the percentage of the number of accounting policies adopted by the firm in agreement with the industry common practice". The preferences of auditors were determined by reviewing the results of a questionnaire sent to the auditors of each firm in the sample (1= auditors' preferences agree with firm' s preferences; 0= otherwise).

Using a Weighted Least Square (WLS) technique, T-K first regressed each one of the three accounting policies on the nine independent variables cited above, and then, using Zmijewski and Hagerman (1981)'s income strategy approach, they regressed a portfolio of the three accounting methods on the nine independent variables. The results of both the single

[42] These quotations are taken from the English version.

accounting policy choice and portfolio strategy choice are summarised in Table (3.1).

Table (3.1)

A summary of the WLS estimation technique results for Tawfik and Kadous (1991) sample

	Single Policy Choice			Portfolio Strategy Choice		
Independent Variables	Inventory	R&D	Zakat	Four	Five	Six
Size	NS	NS*	NS*	NS*	NS	NS
Capital intensity	NS*	0.001	NS*	NS*	NS*	NS*
Concentration Ratio	NS	0.10	NS	NS	NS	NS
Government Ratio	NS*	NS*	NS*	NS*	NS*	NS*
Earnings Direction	NS	NS*	NS	NS	NS	NS*
Debt/Equity Ratio	NS*	0.001	NS*	NS*	NS*	NS*
Conservatism Degree	0.001	0.001	NS	0.001	0.001	0.001
Common Practice	NS	0.05	NS	NS*	NS*	NS*
Auditor Preferences	NS	0.001	0.001	0.10	NS	NS
R^2	0.78	0.998	0.998	0.826	0.773	0.731
F-test	0.01	0.001	0.001	0.001	0.001	0.001

Notes:

1. The decimals reflect the levels of significance.
2. The under-lined decimals reflect the levels of significance when signs are not as predicted.
3. NS signifies not significant, but sign in predicted direction.
4. NS* signifies not significant and sign not in predicted direction.

As Table (3.1) indicates, in the six regression models run, only two economic variables are significant, the capital intensity ratio and debt/equity ratio. However, the signs of these two variables are not as predicted. Given this and the results of the three environmental factors, T-K (pp. 136-139) concluded that the environmental variables are the most important factors influencing accounting policy choices in Saudi Arabia. However, T-K recognised that some of the WLS assumptions might be violated because of the use of dichotomous dependent variables. Therefore, they ran a probit model obtaining the results summarised in Table (3.2)[43].

Table (3.2)

A summary of the probit estimation technique results for Tawfik and Kadous (1991) sample

	Single Policy Choice		
Independent Variables	Inventory	R&D	Zakat
Size	NS*	NS*	NS*
Capital intensity	0.001	0.001	0.01
Concentration Ratio	0.001	0.05	NS*
Government Ratio	0.001	NS*	0.001
Earnings Direction	0.001	0.05	NS*
Debt/Equity Ratio			

[43] T-K did not report the results of the probit model in the case of the portfolio strategy choice.

Conservatism Degree	0.001	0.01	NS*
Common Practice	0.001	0.10	NS
Auditor Preferences	0.001	NS*	NS
	0.001	0.05	0.01

Notes:

1. The decimals reflect the levels of significance.
2. The under-lined decimals reflect the levels of significance when signs are not as predicted.
3. NS signifies not significant, but sign in predicted direction.
4. NS* signifies not significant and sign not in predicted direction.

Using the results of the probit model, which did not confirm the findings of the WLS model, T-K (p. 139) pointed out in their overall conclusion that:

> **Although the results of the study confirm that the environmental variables (such as the degree of conservatism and preferences of auditors) have the most important effects on accounting policy decisions in Saudi Arabia, there are a few economic variables influencing accounting policy choices... the coefficient of earnings direction variable has the correct sign although other variables (debt/equity ratio, capital intensity ratio, and concentration ratio) are inconsistent with their predicted directions.**

Because T-K's study is closely related to our research in the sense that we are investigating the existence (or absence) of economic consequences in Saudi Arabia by examining the hypothesis of whether or not managers of Saudi companies use economic criteria in choosing their accounting policies, it may be helpful if we outline some reasons that might explain why T-K did not find that the economic variables they studied, had a

consistent relationship with the income effect of the accounting policies they examined. These possible limitations can be discussed under four headings:

(1) The WLS model versus the Probit model. The literature (e.g. Watson, 1979; and Gujarati, 1995) has demonstrated that there is a major problem associated with using the WLS estimation technique on dichotomous dependent variables[44]. It is demonstrated that with extreme values for the unconstrained independent variables, the WLS procedure would not guarantee that the estimated probabilities, say P_i, will lie between 0 and 1. The more common and more sensible procedure to overcome this problem is to use logit or probit techniques which guarantee that the estimated probabilities, P_i, will lie between the limits 0 and 1. Hence, this implies that if the WLS technique satisfies the 0-1 constraint on P_i, one would expect the results of the explanatory variables based on the WLS and probit (or logit) techniques will be identical, as Hagerman and Zmijewski (1979) and others observed. With respect to T-K's study, Tables (3.1) and (3.2) indicate that the results of the WLS model are quite different from those of the probit model. Therefore, one would be wise to ignore the results of the WLS estimation technique and concentrate on the findings of the probit model.

(2) Multicollinearity. As is the case with any set of related data, researchers

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[44] See chapter six (section 6.2.2.1) for a detailed description.

typically suspect that their independent variables may be correlated to the point of causing significant multicollinearity within their regression analysis. Their concern about multicollinearity emerges from the fact that if there is high (significant) multicollinearity, the estimated standard errors increase dramatically thereby increasing the probability of accepting the null hypothesis (i.e. increasing the probability of accepting a false hypothesis- a type II error). Evidence on this issue is often obtained by a preliminary examination of the correlation matrix of the independent variables. Because T-K did not perform (and report)[45] such preliminary multicollinearity analysis, one suspects that their regression analysis could suffer from multicollinearity problems. In fact, the suspicions are only increased when one considers the results reported in Table (3.1). Although the majority of the coefficients in the six models are statistically insignificant at an individual level on the basis of the *t* test, the reported R^2 values are very high and the *F* values are highly significant. Gujarati (p. 331) reports "... this is one of the signals of multicollinearity-insignificant *t* values but a high overall R^2 (and a significant *F* value)!". Therefore, one has to be extremely cautious in interpreting the significance of the results of both the WLS and

[45] T-K also did not report evidence on multicollinearity problem in the English version of their paper.

probit models reported in the T-K's study.

3. The dependent variables. T-K stated on pages 123 and 129 of their paper that variations in the three accounting policies, which served as the dependent variables in their models, are identified by inspecting the 1986-1989 published annual reports of 28 Saudi companies. In this context, they did not *implicitly* or *explicitly* state whether these identified variations in the three accounting policies, are found in the years 1986, 1987, 1988, or 1989[46]. This ambiguity might have caused errors in classifying firms into the income-increasing category or the income-decreasing category (i.e. error in the left-hand-side variable-the well known errors in variables problem).

(4) The independent variables. There are two explicit assumptions which underlie T-K's political cost hypotheses. The first is that the political costs affecting Saudi firms during the 1986-89 period were *constant*. In this regard, no explanations were given to justify such a crucial assumption. The second explicit assumption is that the political costs were a positive function of the *average* of firms' (1) total assets, (2) capital intensity ratio, and (3) concentration ratio. This assumption is inconsistent with the positive accounting literature. For example, consider the size hypothesis which,

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[46] In the English version of their paper, T-K also did not state the year of investigation. They only noted that (p.5) "the sample used in this study was taken from the published annual reports of the Saudi corporations covering the period 1986-1989".

according to Watts and Zimmerman (1978, 1986, and 1990), predicts that larger firms will tend to adopt income-decreasing accounting policies because they are more visible than smaller firms and therefore more likely to be subject to political intervention resulting in expropriation of wealth. Now, if one uses the average of four-years' total assets, distinguishing between large and small firms in a sample of 28 companies becomes very difficult. This is, perhaps, the reason why T-K found that the size variable, which is one of the most important determinants of accounting policy choice in other countries[47], is particularly insignificant in all their models. Furthermore, unlike USA companies, almost all of Saudi joint stock companies receive most of their external finance from the Government in the form of medium- and long-term interest free loans. Therefore, one would find it very difficult to believe that managers' accounting policy decisions in Saudi Arabia were influenced by the restrictive covenants of their firms debt contracts as has been hypothesised in the USA.

3.3.3 SUMMARY

Beginning with Hagerman and Zmijewski (1979), the above section reviewed several studies that have attempted to understand and predict

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[47] See, for example, Holthausen and Leftwich (1983); Watts and Zimmerman (1986 and 1990); Christie (1990, Table 1); and Whittred, Zimmer and Taylor (1996, chapter 2).

management's accounting policy decisions in developed and less developed countries. The theme that underlies these studies is that accounting policy decisions are determined by political costs, which typically cause firms to use accounting procedures that reduce current earnings, and debt and compensation contracts, which generally encourage firms to use accounting procedures that increase current earnings. In relation to studies which have been conducted in developed countries, the empirical evidence is generally consistent with:

(1) The size and concentration ratio hypotheses. The larger a firm's size, and the higher the firm's concentration ratio, the more likely its managers are to use income decreasing accounting policies. However, although these two political cost variables are likely to be among the most important determinants of accounting policy choice, researchers tend to emphasise the existence of other important factors, since the nature and level of political costs depends on the political and legal environment in which firms operate;

(2) the debt/equity hypothesis. The higher a firm's debt/equity ratio, the more likely its managers are to use income increasing accounting policies. The debt/equity ratio is one of the most tested variables although previous research has cast some doubts on its appropriateness as a proxy for the

expected costs associated with the violation of accounting-based debt covenants. However, recent studies which have examined the details of individual debt agreements have found that the debt/equity ratio is a valid proxy for the costs of leverage associated with changes in accounting policies and is significantly related to the tightness of the actual covenant;

(3) the compensation plan hypothesis. Managers of firms with an earnings-based compensation plan are more likely to use income increasing accounting policies. The consistency of this hypothesis is also supported by the findings of Christie's (1990) aggregated study, who summarised much of the applied economic consequences literature and noted that managerial compensation is one of six variables with significant explanatory power across studies; and

(4) insider ownership. The lower a firm's insider ownership, the more likely its managers are to use accounting policies that increase the present value of their compensation packages.

In relation to studies which have attempted to evaluate the robustness of using the costly-contracting and political hypothesis ideas to explain accounting policy decisions in less developed countries, the empirical evidence in all, results in the findings that are in contrast with the common results reported in developed countries. However, these studies have

generally attributed the differing results to environment-related reasons, suggesting the necessity of understanding the political, legal, economic, and accounting environment in which the research will be conducted.

3.4 CONCLUDING REMARKS

Since the late 1970s, there has been a large volume of empirical research which has adopted the costly-contracting and political cost theories in an attempt to provide empirical evidence on the existence of economic consequences associated with actual or proposed accounting standards. Most of the published evidence (relating almost exclusively to the USA) can be divided into three distinct categories: (1) the effects of existing or proposed accounting standards on the magnitude and direction of the abnormal returns of firms, and how these effects relate to firms' specific characteristics, (2) the effects of a new accounting standard on management's lobbying behaviour, and (3) the economic factors that motivate a firm to voluntarily adopt certain accounting policies.

Although studies falling into the first two categories are not closely related to our study, their findings are important because they have demonstrated that some accounting standards give rise to economic consequences. For example, stock market studies show that there is a systematic relationship between cross-sectional stock price variations and

some political and contracting variables, particularly debt covenant variables.

Our study falls into the third category. The findings as they relate to this category provide the strongest evidence consistent with the economic consequences of accounting policy choices. They generally demonstrate that firms' accounting policy decisions differ according to the size, concentration ratio, debt/equity ratio, earnings-based compensation plan, and insider ownership. These five factors have been found to be among the most important determinants of accounting policy decisions in developed countries. However, some empirical studies have failed to demonstrate the importance of these factors in explaining accounting policy choices in less developed countries.

Our final conclusion from this literature review is that understanding the political, legal, economic, and accounting environment in which the research has been conducted is fundamental to the implications and interpretations of the costly-contracting and political cost theories on the part of any economy. The following chapter is, therefore, designed to provide an understanding of the political and socio-economic environment in which accounting policy choice occurs in Saudi Arabia.

CHAPTER FOUR:

SAUDI ARABIAN ENVIRONMENT

4.0 INTRODUCTION

> **Accounting, like other social science disciplines and human activities, is largely a product of its environment. The environment of accounting consists of social-economic-political-legal conditions, restraints, and influences that vary from time to time** (Kieso and Weygandt, 1989, p. 3).

This chapter sets the scene for the study by summarising Saudi Arabia's political, legal, economic and accounting environment as well as the Saudi stock and labour markets. Such an examination of the Saudi Arabian environment serves three major purposes. First, it is instructive as an aid to understanding the environment in which the research is conducted. Second, it lays the groundwork for the development of the research hypotheses. Last, it provides a general frame of reference through which the reader can assess the importance of the research results to the development of the accounting profession in Saudi Arabia and other less developed countries.

The chapter consists of six sections. The political and legal systems in Saudi Arabia are briefly described in section 4.1 and Saudi Arabia's economic and financial environment is summarised in section 4.2. Section 4.3 provides an introduction to the legal framework of the accounting and auditing profession. In this section we also review and assess Saudi financial accounting and reporting practices. Sections 4.4 and 4.5 describe the Saudi stock market and managerial labour market, respectively. Section 4.6

presents some concluding remarks which are written on the basis of their importance to the development of our research hypotheses.

4.1 THE POLITICAL AND LEGAL ENVIRONMENT

This section describes the political and legal systems in Saudi Arabia. However, it does not deal comprehensively with these systems, but gives broad background information with special emphasis on some government institutions which are very important if one is to obtain a balanced-picture of the Saudi's political and legal environment.

4.1.1 The Political System

The Kingdom of Saudi Arabia is an Islamic monarchy. It is the creation of the King Abd al-Aziz Bin Abd al-Rahman al-Faisal al-Saud who was officially proclaimed as the King of Saudi Arabia in 1932. The present ruler of Saudi Arabia is King Fahd, who has inherited this position by virtue of the Saudi Constitution, which provides:

> **A)- The system of government in the Kingdom of Saudi Arabia is monarchy.**
> **B)- Rule passes to the sons of the founding King, Abd al-Aziz Bin Abd al-Rahman al-Faisal al-Saud, and to their children's children. The most upright among them is to receive allegiance in accordance with the principles of the Holy Koran and the tradition of the Venerable Prophet** (Saudi Arabian Basic Law of Government, 1992, chapter two, article 5).

The King administers the country through the Council of Ministers. This Council was established in 1953 as a decision making body and has the following functions: (1) exercising the entire country's legislative, judicial, executive and administrative affairs, (2) establishing the organisation of and co-ordination between government bodies, and (3) enacting requirements to be fulfilled by Ministers. The King Fahd presides over the Council of Ministers as Prime Minister. The King's half-brother, Prince Abdullah, is Crown Prince and First Deputy Prime Minister, whereas his full-brother, Prince Saultan, is the Second Deputy Prime Minister and the Minister of Defence and Aviation.

There are no political parties, unions or franchises in the Kingdom of Saudi Arabia. However, the establishment of *Majlis al-Shura* (the Consultative Council) in 1992 is basically meant to enable selected sectors of the population to participate in the formulation of the Kingdom's foreign and domestic policies and to bring their opinions to the Government's attention. This new Council consists of 90 appointed members and a Chairman who are selected by the King. The establishment of the *Nizam al-Muqata'at* (provincial government) in fourteen provinces in 1992 is also intended to give more authority to the provincial governors and the local assemblies. It is also important to note the significant influence of *Majlis*

Hay'at Kibar al-Ulama (the Council of the Assembly of Senior *Ulama*[48]) on the nation's political affairs. This Council is the head of the religious pyramid. Its members hold power by virtue of their special status in an Islamic state.

4.1.2 The Legal System

The Kingdom of Saudi Arabia is one of a few independent monarchical states in the world where the principles of the Islamic religion constitute the social, economic, cultural, civil, legal and political codes of the country. The chief sources of the Kingdom's constitution and law are: (1) *Al-Qura'n Al-Karim*[49]; and (2) *Al-Sunnah Al-Sharifa*[50].

> **The Kingdom of Saudi Arabia is a sovereign Arabic Islamic state with Islam as its religion; God's Book and the Sunnah of his Prophet, God's prayers and peace be upon him, are its constitution, Arabic is its language and Riyadh is its capital** (Saudi Arabian Basic Law of Government, 1992, chapter one, article 1).

The King is the final authority on which new policies to follow or which proposed laws to promulgate. He is the point of reference for the three authorities; the judicial authority, the regulatory authority and the

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[48]*Ulama* refers to the religious scholars who are the authorised interpreters of *Al-Qura'n Al-Karim* and of its application with *Al-Sunnah Al-Sharifa*, to everyday life.

[49] Op. Cit. (1).

[50] Op. Cit. (2).

executive authority[51]. Under certain circumstances, members of *Majlis al-Shura* and *Majlis Hay'at Kibar al-Ulama* may influence the King's decisions. They often legitimise decisions on matters of importance in addition to those related to religious affairs which require consensus.

In general, the King administers the Kingdom's affairs through two types of decrees. The first is Royal Decrees which are enacted by the King himself and usually cover the appointment of Deputy Prime Ministers, Ministers, judges and those of higher rank, and the termination of their appointments[52]. The second is Ministerial Decrees which are enacted through the Council of Ministers and reflect the prerogatives of the Council regarding internal and external affairs. The Basic Law of Government also gives each Minister and head of key departments the right to take decisions and to enact laws on matters that relate to their responsibilities; but such laws must not be in conflict with the principles of Islam or to the Royal and other Ministerial Decrees.

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[51] Saudi Arabian Basic Law of Government, 1992, chapter six, article 44.

[52] Ibid., articles 52, 57a and 58.

4.2 THE ECONOMIC AND FINANCIAL ENVIRONMENT

This section is about the economic and financial environment in Saudi Arabia. It is divided into two sub-sections. The first chronicles the planning efforts that have become the basis for the present economic environment. The second places special emphasis upon the role of some ministries and government-operated credit institutions in promoting the Kingdom's financial system.

4.2.1 The Economic Environment

The economy of the Kingdom of Saudi Arabia has been developed through a series of five-year plans. During the pre-oil period, livestock of the nomadic tribes, agriculture and funds brought in by the annual pilgrimage to the Holy cities, Makkah and Madinah, were the mainstay of economic activity in Saudi Arabia. The vast production of oil in commercial quantities, which took place in the period that immediately followed the end of the Second World War, and the vast increase in oil prices in the 1960s instituted a race towards a modernisation and made possible the launching of a domestic development plan on a wholly different scale.

The Kingdom's first five-year development plan (1970-1975) called for budgeted expenditure of SR 41,314 million (in constant 1970 prices) and had the following broad aims: (1) maintaining a high rate of economic

growth; (2) developing and creating opportunities for the country's human resources; (3) building up a social services infrastructure; and (4) diversifying the economy's industrial base[53].

Like the first plan, the second five-year development plan (1975-1980) had a character and direction of its own.. It had the following main goals: (1) to maintain a high rate of economic growth; (2) to reduce expenditure and dependence on oil; (3) to build up a national industrial and social services infrastructure; and (4) to develop human resources through education and improve the standard of living of the Saudi people[54]. Its budgeted expenditure was SR 498,270 million (in constant 1970 prices)[55]. In sum, the key aspect of the second plan was the expansion of oil-related production with an emphasis on the petrochemical and mining industries and the development of the private sector.

The third development plan (1980-1985) called for budgeted expenditure of SR 782,700 million (in constant 1979/80 prices) and had the same fundamental objectives as the first and second plans, but with more

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[53] Central Planning Organization (CPO), *First Development Plan: 1970-1975*, (the Kingdom of Saudi Arabia, Riyadh: CPO, 1970) p. 43. Note that in October 1975 the CPO was elevated to the Ministry of Planning.

[54]Ministry of Planning, *Second Development Plan*: *1975-1980*, (the Kingdom of Saudi Arabia, Riyadh: Ministry of Planning , 1976) pp. 3-4.

[55] Ministry of Planning, *Third Development Plan*: *1980-1985*, (the Kingdom of Saudi Arabia, Riyadh: Ministry of Planning , 1980), p. 88.

emphasis on productive sectors; specifically industry, agriculture and mining, and relatively less on infrastructure[56]. In general, at the end of this plan, four distinct structural changes became apparent (Wright, 1996, pp. 20-22). First, for the first time emphasis was placed on the importance of human resources. This is indicated by: (1) the allocation of 19 percent of the third plan's budget for the development of human resources, and (2) the establishment of the Manpower Council in 1980, where nine of its twelve members are key Ministers. Second, the service sector became the mainstay of growth in the economy, gaining 64 percent of the economy's output in 1985[57]. Third, the non-oil manufacturing sector took on a somewhat new identity, changing from large industrial projects to medium-sized and small manufacturers. It was estimated that at the end of 1985 there were about 2,000 producing entities in the Kingdom. Last, the agriculture sector became much more productive, making the Kingdom of Saudi Arabia a wheat exporter.

The fourth development plan, covering the period 1985-90, has given increasing priority to private sector activities. This is because infrastructure construction had reached a satisfactory level due to previous plans. The

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[56] Ibid., pp. 3-4 and p. 88.

[57] Saudi Arabian Monetary Agency (SAMA), *Annual Report No. 32*, (the Kingdom of Saudi Arabia, Riyadh: SAMA, 1996), p. 198.

budget for this plan was about SR 1000 billion, with approximately 50 percent of it allocated to development programmes that would: (1) increase the productivity of agriculture, finance and manufacturing; (2) maintain a high rate of economic growth through encouragement of private sector investment activities; (3) reduce the expenditure and dependence on oil production; and (4) improve human resources and reduce the number of unskilled foreign workers (Al-Farsy, 1990, pp. 159-164). The fourth plan's success is indicated by the fact that the share of the oil sector in total GDP declined from 56 percent at the end of the first plan to 30 percent in 1990, while the non-oil sector's share increased to about 70 percent by the end of the 1990[58].

The fifth development plan (1990-1995) represented a basic continuation of the objectives set forth for the fourth plan. The notable difference was that efforts towards education and training have intensified. It is estimated that 19 percent of the fifth plan's total budget was allocated to human resource development. This reflected the Government's intention of continuing to aid the private sector through supporting its managerial and training needs. This plan also gave more attention to the development of the financial system.

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[58]Ibid., pp. 196-199 and p. 202.

> **Although the financial system in the Kingdom has developed dramatically during the last two decades, it needs further strengthening in each of these dimensions to meet the investment requirements of the fifth plan more effectively... Thus, a need arises for a growing share of the banking system's financial assets to be invested in the Kingdom, and for the range of financial services supporting the business sector to be expanded** (Ministry of Planning, *Fifth Development Plan: 1990-1995*, the Kingdom of Saudi Arabia, Riyadh: Ministry of Planning, 1990, p. 155).

Abdel-Wahhab Attar (1997), the Minister of Planning, gives an example of the fifth plan's success:

> **In 1971 Saudi Arabia had only 119 factories. By 1995 the number had leapt to 2303, with a total investment of capital of over US$ 27 billion. ...Electricity generation in 1971 was a mere 344 Megawatts whereas by 1995 the output had reached the astounding figure of 17,400 Megawatts. Consumers linked to electricity network in 1971 numbered 216,000 but by 1995 the total of electricity accounts had reached 2.9 million. The storage capacity of grain silos in the kingdom was by 1995 2.38 million tons while flour mills capacity for the same year reached a staggering total of 1.35 million tons annually... Economists also affirm that the industrial sector in the Kingdom of Saudi Arabia is expected to expand rapidly in the next decade increasing total investments in the Saudi industrial sector to some SR 670 billion (US$ 180 billion)...** (Saudi Arabian Bulletin, vol. 2, no. 8, p. 6).

Saudi Arabia is now in its sixth five-year development plan (1995-2000). The vast decrease in oil prices and the public antagonism toward the Government which took place during and after the 1990 Gulf crisis have given the sixth five-year development plan a character and direction which is

distinctly different from that of previous plans. In general, the 1995-2000 development plan has four main strategic economic goals[59]:

1. Privatisation, an end to subsidised provision of public utilities and a balanced budget;
2. the development of human resources to ensure an increasing supply of manpower, the upgrading of its efficiency to meet the requirements of the national economy and replacement of foreign labour by Saudi workers;
3. the promotion of economic growth through encouragement of the private sector to participate in the economic and social development process; and
4. the continued restructuring of the economy through diversification, with special emphasis on industry and agriculture.

To achieve these objectives, the plan identified the following guiding principles: (1) continue 'Saudization' of the labour force by modifying education and training curricula and programmes; (2) expand the privatisation programme by creating opportunities for the private sector to take over more economic responsibilities; and (3) rationalise subsidies provided by the Government for many services and commodities[60]. The

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[59] Ministry of Planning, *Sixth Development Plan: 1995-2000*, (the Kingdom of Saudi Arabia, Riyadh: Ministry of Planning , 1995), pp. 91-96.

[60] Ibid. pp. 87-88.

basic message of this plan is much more specific- that the Government wants the private sector to become the backbone of the Saudi economy and that the Government shall not carry out any activities that could be undertaken by the private sector.

4.3.2 The Financial Environment[61]

The Ministry of Finance and National Economy is the backbone of the financial system in Saudi Arabia. It is responsible for drafting the annual fiscal budget and the allocation of finance to each government spending agency. Under its control is the Saudi Arabian Monetary Agency (SAMA) which was created by Royal decree in 1952 to act as the Kingdom's central bank. Since its inception, SAMA has undertaken a wide range of functions; holding and managing the Government's foreign monetary reserves; controlling and overseeing the distribution of government revenues earmarked for public agencies; monitoring the money supply; printing and controlling local currency and managing the exchange rate of the Saudi Riyal which is officially linked to the US dollar at SR 3.75. In general, SAMA's charter, which was issued in 1957, defines the two main objectives of the agency's mandate; to stabilise the value of the currency and to

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[61] The figures presented in this section are based on the latest annual report released by the Saudi Arabian Monetary Agency (SAMA), *Annual Report No. 32*, (the Kingdom of Saudi Arabia, Riyadh: SAMA, 1996).

regulate the domestic commercial banks and stock market. From a bank perspective, SAMA is free to manage the banking system in the Kingdom and in this regard its responsibilities were laid down in the 1966 Banking Control Law which still forms the basis of commercial bank regulation. This law sets banks' license requirements. In 1995, there were eleven joint-stock banks in the commercial banking sector in Saudi Arabia. These banks are either wholly Saudi-owned or at least have 60% Saudi ownership. The Banking Control Law also sets banks' reserves and liquidity requirements, regulates the maximum total of loans which a bank may grant, and sets banks' service fees. Before the development of the 1995-2000 plan, the main function of the commercial bank sector was in providing short-term loans for trade financing purposes. Recently, the banking sector has also been responsible for funding the Government's budget deficit. Also, a trend in bank lending is now toward the provision of long-term credit to industrial projects.

Besides the commercial banks, the financial system in Saudi Arabia also comprises six semi-government specialised credit institutions which have been created to improve the distribution of funds earmarked for the

development of the private sector. These six government funding institutions are:

I. The Saudi Arabian Agricultural Bank (SAAB) was established in 1964 to act as the agent for the Ministry of Agriculture and Water. It provides interest free loans to the agricultural sector for a variety of purposes ranging from the purchase of farm machinery and well drilling, to the construction of large-scale dairy projects. The bank has provided 362.4 thousand loans valued at SR 27.5 billion since its inception in 1964. The total loans provided in 1993 by the bank were valued at SR 931 million. Medium-term loans alone accounted for about 96.4 percent of this total lending. The provision of water (comprising drilling and casing of wells, irrigation equipment, engines, pumps, and piping) accounted for over 30 percent of the loans extended, and agricultural projects and machinery for another 56.7 percent. In addition, the bank offers agricultural subsidies which, since its inception and to the end of 1993, reached over SR 10 billion.

II. The Saudi Industrial Development Fund (SIDF) was founded in 1974 with the objective of providing interest-free loans for periods of up to 15 years and for up to 50 percent of the total costs of new industrial construction, expansion, modernisation and renovation schemes. In

general, the principal objective of the SIDF is to assist and encourage the private sector to undertake industrial projects. Total loans provided by SIDF since its inception and up to the end of 1994, amount to SR 17.5 billion, of which over 67 percent was allocated to the financing of the cement, petrochemical, metal, building materials and food and beverages sectors.

III. The Public Investment Fund (PIF) provides medium- and long-term loans for up to 60 percent of the total costs of projects. It is mainly created to finance public corporations (such as electrical companies) and some public and semi-public industrial companies which are engaged in the development of oil-refining capacity and the production of petrochemicals, iron, steel and aluminium. Total loans extended by the PIF since its inception in 1971 reached SR 67.6 billion in 1994; SR 37.9 billion of this total was allocated to the financing of electrical projects.

IV. The Real Estate Development Fund (RSDF), the Saudi Credit Fund for contractors (SCF) and the Saudi Credit Bank (SCB), whilst making a significant contribution to the Saudi economy, are less concerned with making a contribution to private sector activities. The RSDF and SCF were created in the late 1970s to eliminate the private

and public housing shortage. The RSDF extends interest-free housing loans for periods of up to 25 years. In total it disbursed credit of SR 69 billion between 1976 and 1994, the loans being used by citizens for the construction of residential houses and by investors for building residential and commercial compounds. The SCF also grants long-term loans to Saudi building companies for purchasing building materials. The SCB made its first loans in 1973, its intention being to assist low-income citizens; the loans being used for both social and economic purposes.

There are also a number of relevant government departments that have a significant effect on the financial system in the Kingdom of Saudi Arabia. Among them are the Ministry of Industry & Electricity, the Ministry of Commerce and the Saudi Chambers of Commerce and Industry.

1. The Ministry of Industry & Electricity was established in 1975 with the objective of administering industrial policy. The two principal objectives of this Ministry are to function as a licensing bureau and to supervise, regulate and encourage national industries. The number of licenses issued by the Ministry of Industry & Electricity for manufacturing projects increased from 119 factories in 1971 to 2,355 factories by the end of 1995 with an accumulated capital of over SR 157 billion. The major industries

involve basic metal processing, representing 28 percent of the total number of licenses and around 9 percent of the authorised capital, followed by chemicals and plastic, and food and beverages, with 18 and 15 percent respectively of the total number of licenses issued and about 63 and 6 percent of the authorised capital, respectively.

2. The Ministry of Commerce was created in 1975 to function as a regulator of companies operating in the Kingdom, to regulate, supervise and encourage the auditing and accounting profession, and to deal with trade marks and foreign consultation. By law, business companies must register with the Commercial Register Office in the Ministry of Commerce. The latest Saudi Arabian Monetary Agency's Annual Report reveals that by the end of 1994, there were 7,815 companies registered in Saudi Arabia of which 92 are joint stock companies with a combined paid-up capital of SR 71.7 billion.
3. The Saudi Chambers of Commerce and Industry consists of 18 domestic chambers, of which three are located in major cities. These chambers provide a variety of functions ranging from developing training programmes suitable for entrants to the private sector, to defining investment opportunities for both Saudi and overseas companies. By law, companies importing and exporting goods and services to Saudi Arabia or

bidding for government contracts, must be a member of one of the chambers of commerce.

4.3 THE ACCOUNTING AND AUDITING ENVIRONMENT

The accounting and auditing profession in Saudi Arabia is in its early stages of development. The period before the establishment of **the Saudi Organisation for Certified Public Accountants (SOCPA)** in 1992 can be described as being marked by a complete absence of authoritative support for accounting and auditing practices. However, this does not mean that there were no accounting and auditing regulations in Saudi Arabia before 1992. In fact, the current legal and institutional framework surrounding the Saudi accounting and auditing profession has origins in the 1950 Income Tax and Zakat Law, the 1965 Companies Act and the 1974 Accountants Law, as well as in the legislation introduced in 1986 with the objective of building up a conceptual framework for financial accounting and reporting.

In this section we look at the accounting and auditing environment in Saudi Arabia through two main themes. We first examine the current legal framework of the accounting and auditing profession. Then, the present financial accounting and reporting practices are reviewed and assessed through the findings of two recent exhaustive studies.

4.3.1 Accounting and Auditing Regulations

The current legal framework of the accounting and auditing profession in Saudi Arabia has been the result of (1) a few rules contained in the Income Tax and Zakat Law and the Companies Act, (2) the 1986 Ministerial decision concerning "Auditing Standards" and "Statement of Financial Accounting Objectives, Concepts and General Standard of Presentation and Disclosure", and (3) the 1992 Certified Public Accountants (CPA) Regulations.

1. **The Income Tax and Zakat Law** was first introduced by the Royal Decree No. 17/2/28/3321 dated 21/1/1370 A.H. (1950). This law contained a number of accounting and auditing requirements which had not previously been subject to legislation. However, the 1950 law has been amended several times and added to by further Ministerial decisions and memoranda and Department of Zakat and Income Tax (DZIT) circulars. In general, the Income Tax and Zakat Law requires non-Muslim-owned companies and entities jointly owned with non-Muslims to pay taxes, and Saudi nationals, both companies (wholly Saudi owned or on the Saudi share of corporate profits of entities jointly owned with

Non-Muslims) and individuals, to pay Zakat[62]. The law defines the Zakat as a religious duty (tax) charged in accordance with *Al-Qura'n Al-Karim* and *Al-Sunna Al-Sharifa* and levied on proceeds, profits, and gains from all sources: business, industry or personal work, and property or monetary acquisitions of whatever type or description, including commercial and financial transactions and dividends, livestock, crops, capital, and income from capital. In the area of Zakat regulation, the major provisions contained in this law with respect to companies can be summarised as follows:

- Every company is required to maintain organised accounting records which should be sufficient to show and explain the company's transactions and to disclose at any time with reasonable accuracy the amount of Zakat due. These accounting records should be prepared in accordance with what is termed "internationally accepted practices" and certified by "a commercial court or a public notary".
- The law specifies the rate of the Zakat to be 2.5% of the net invested funds, 'total amount subject to Zakat'. Circular No. 2/8443/2/1 issued in 8/8/1392 A.H.(1972) required the 'total amount subject to Zakat'

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[62] Because the sample used in our empirical research is composed of Saudi joint stock companies, our emphasis in this section is placed upon the Zakat provisions.

be calculated as follows: income and property (including equity invested in operations) minus long-term investments and net fixed assets that are not held for resale. This can be simplified as follows:

1). Paid-in Capital- Jan.,1	xxxxxx	
2). Reserves- Jan.,1	xxxxxx	
3). Retained Earnings- Jan.,1	xxxxxx	
4). Net Profit-Dec.,31	xxxxxx	
5).Credit Current Account- Dec.,31	xxxxxx	
	----------	xxxxxx
Less:		
6). Net Loss-Dec.,31	xxxxx	
7). Long-term contracts-Dec.31	xxxxxx	
8). Net Fixed Assets-Dec.31	xxxxxx	
9). 80% of Raw Materials and Spare-parts*	xxxxxx	
	----------	(xxxxxx)

Net Invested Funds (Total Amount Subject to Zakat)		**xxxxx**
		---

* This is only applied on electrical, transportation and pilgrim companies.
Source: The Minister of Finance, circulars No. 2/8443/2/1 dated 8/8/1392 A.H. (1972) and No. 687/2/1 dated 22/1/1393 A.H. (1973).

- The Ministerial Decree No. 104 issued in 30/1/1408 A.H. (1988) required companies to charge Zakat to the profit and loss account as an expense rather than to the retained earnings account. Prior to that

time, managers of Saudi companies could choose which of the two accounting treatments they wished to apply[63].

2. **The Companies Act** was first introduced by the Royal Decree No. M/6 dated 22/3/1385 A.H. (1965) in response to the accelerating growth of companies in the early 1960s. This Act has been described as being the first statute to define the types of business organisations in Saudi Arabia and it also determined the legal framework for companies and accountants. However, the 1965 Act has been subject to many revisions and extensions. It was most recently amended in 1992 when 233 provisions were introduced, of which 100 are in the area of the regulation of joint stock companies. The following paragraphs briefly highlight the major accounting and auditing provisions contained in the joint stock companies section:

- Every company is required to present annually to the auditor, a set of accounts, which should comprise a balance sheet, a profit and loss account and a report on the company's activities and financial situation during the financial year, together with the proposed method

[63] **The difference between these two treatments is fully explained by a numerical example in chapter six (section 6.1.2.3).**

for the allocation of the net profit[64]. These documents, a summary of the board of directors' report and the full text of the auditor's report should together be placed at the disposal of shareholders at least twenty-five days prior to the annual general meeting. They must also be published in a newspaper distributed in the locality of the head office of the company [65].

- The entries appearing in the financial statements of a company must be consistently measured and classified over time[66].
- Each year, companies are required to set aside 10 percent of their net profits to form what is called "a statutory reserve" which shall be used to cover future losses or to increase capital. The Act also gives each company the right to set aside a certain percentage of its net profit to build up "a contractual reserve" which shall be used in accordance with the company's by-laws[67].
- Companies' by-laws shall specify dividend distributions which have to be a percentage of net profit, after setting aside amounts required

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[64] Companies Act 1992, (the Kingdom of Saudi Arabia, Riyadh: Ministry of Finance, 1992), Article 123.

[65] Ibid., Article 89.

[66] Ibid., Article 124.

[67] Ibid., Articles 125 and 126.

for the statutory and contractual reserves. Such a percentage has to be not less than 5 percent of the company's capital[68].

- Companies' by-laws shall also specify the way in which directors are to be remunerated. Article 74 states that:

> **The company's by-laws shall specify the manner of remunerating directors. Such remuneration may consist of a specified salary, or of an attendance fee for the meetings, or of material benefits, or of a certain percentage of the profits, or of a combination of two or more of these benefits. If, however, such remuneration represents a certain percentage of the company's profits, it must not exceed 10% of the net profits after deduction of expenses, depreciation, and such reserves as are determined by the general meeting pursuant to the provisions of these Regulations or of the company's bylaws, and after distribution of a dividend of not less than 5% of the company's capital to stockholders.**

- The Act requires the ordinary general meeting of each company to appoint an auditor(s) who is (are) to examine, at any time, the company's books, records and other documents and to report whether the financial statements provide "a real view" of the company's financial position at the end of the period and profitability during that period. The Act[69] also provides for the auditor's appointment, remuneration, independence, responsibilities, and removal.

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[68] Ibid., Article 127.

[69] Ibid., Articles 130, 131, 132 and 133. Note that the Ministerial Decree No. 903 dated 12/8/1414 A.H. (1994) requires the general meeting of each joint stock company to create an audit committee within the company. The principal objectives of this committee shall include the appointment of the company's auditor(s).

3. **The 1986 Ministerial Decision** came as a direct response to extensive public criticism of accounting and auditing practices. It was issued by the Minister of Commerce's Decision No. 692 dated 28/2/1406 A.H. (1986) and published in two volumes; "Accounting Objectives and Concepts and General Standard of Presentation and Disclosure" and "Auditing Standards". This decision can be described as being the first statute to define the framework of the accounting and auditing profession in Saudi Arabia. The significance of this decision can be assessed by looking at the main elements of its provisions:

- **Users of financial statements**. The 1986 decision divides users of financial statements into two main categories; "users directly involved in the business enterprise" and " users indirectly involved in the business enterprise". The first category includes present and prospective investors, lenders, the Zakat and Income Tax Department, Government, Government funds, management and personal clients and suppliers of the company. The second category of users involves Governmental control agencies and Government agencies concerned with planning and directing the national economy.

- **Financial accounting objectives**. According to the 1986 decision, the basic objectives of financial reporting in Saudi Arabia are to

provide information (1) that is useful in investment and credit decisions, (2) that is useful to present and potential investors and lenders in assessing cash flow prospects, (3) about enterprise assets, liabilities and owner's equity, and (4) about the sources and utilisation of the enterprise's cash or other liquid resources.

- **Qualitative characteristics of accounting information**. Seven characteristics that make accounting information useful for decision making are determined and defined in the 1986 decision. These are relevance, reliability, neutrality, comparability, timeliness, understandability and materiality.

- **Basic elements of financial statements**. Ten elements that are most directly related to measuring the performance and financial position of an enterprise are formally stated and defined in the 1986 decision. These elements include assets, liabilities, equity, investment by owners, distribution to owners, revenues, expenses, gains, losses and net income (net loss).

- **Accounting principles**. The decision specifies that the general principles to be followed in preparation of accounts are the economic entity, going concern, periodic reporting, monetary unit, revenue

recognition, measurement basis (historical cost) and matching principles.

- **General standard of presentation and disclosure**. This standard became mandatory in mid-1989 and requires companies to prepare a complete set of financial statements, which should comprise a statement of financial position, a statement of income (loss), a statement of retained earnings (or alternatively, a statement of changes in owner's equity), a statement of sources and applications of funds and notes to the financial statements. The standard also defines six disclosure requirements. These are nature of business, significant accounting polices, accounting changes, contingencies, commitments and subsequent events. In addition, the presentation and disclosure standard prescribes a large number of formats for presentation of financial statements. In the case of combined and individual financial statements, there are four possible formats for the statement of financial position and the income statement, one format for the statement of retained earnings and the statement of changes in owners' equity and three formats for the statement of sources and applications of funds.

- **Limitations of financial statements**. The 1986 decision specifies that information contained in financial statements may need to be adjusted by some Government agencies such as the Zakat and Income Tax Department and Government credit institutions. Furthermore, it is specified that although financial statements provide information necessary for evaluating an enterprise's performance, they do not provide direct information that may help users to evaluate its management performance or to measure its market value or the risk associated with holding its equity.
- **Auditing standards**. The second volume of the 1986 Minister of Commerce's Decision defines seven auditing standards. These are:

1. Standard of adequate professional competence;
2. standard of auditor's neutrality and independence;
3. standard of due professional care;
4. standard of audit planning;
5. standard of documentation and control;
6. standard of audit evidence; and
7. standard of audit reporting.

However, further discussion of these standards is beyond the scope of the present study.

4. **The 1992 Certified Public Accountants Regulations** were enacted by the Royal Decree No. M/12 dated 13/5/1412 A.H. (1992). These regulations were introduced with the objective of replacing the 1974 Accountants Law and establishing the Saudi Organisation for Certified Public Accountants (SOCPA). They consist of 38 articles, of which 29 specify the requirements for persons to be licensed as auditors in Saudi Arabia. In general, these 29 requirements deal with registration procedures and fees and the auditors' qualifications, responsibilities and penalties. However, amongst the major articles contained in the 1992 CPA Regulations are articles 19 to 27 which state the foundation, objectives and structure of the Saudi Organisation for Certified Public Accountants (SOCPA). The following paragraphs briefly highlight some of these articles and specify the main activities undertaken by the SOCPA since its inception in 1992 and to the end of 1998:

- Article 19 states that an organisation shall be established under the name of the Saudi Organisation for Certified Public Accountants (SOCPA). SOCPA shall operate under the supervision of the Ministry of Commerce and act as a Governmental regulatory agency promoting and administrating the accounting and auditing profession and all practical matters. Its main objectives include (1) to review, develop

and approve accounting and auditing standards, (2) to prepare and grade the Certified Public Accountants examinations and determine the educational qualifications and other criteria to be met by persons who wish to take the examinations, (3) to organise courses of continuous accounting and auditing education, (4) to conduct research studies and to publish periodicals, books and bulletins covering all matters that may lead to the development of the accounting and auditing profession, (5) to establish an appropriate quality review programme in order to ensure that the provisions of the 1992 Certified Public Accountants Regulations as well as the present and future accounting and auditing standards are implemented by members of SOCPA, and (6) to participate in local and international committees and symposia relating to the accounting and auditing professions.

- To ensure that public accounting firms support and implement SOCPA's pronouncements, article 20 requires all managing partners of these firms to be members of the SOCPA.

- Article 24 requires that SOCPA's Board of Directors must comprise (1) the Minister of Commerce (chairman), (2) the Deputy Minister of Commerce, (3) the Deputy Minister of Finance and National Economy for Financial Affairs and Accounts, (4) the Vice President

of the General Controller's Bureau, (5) a representative from the Council of Chambers of Commerce and Industry, (6) two Saudi academicians selected from Saudi universities, and (7) six practitioners selected from Saudi firms of public accountants.

- Article 26 specifies that SOCPA's financial resources are to include subscriptions, government subsidies, gifts and donations and proceeds from the Organisation's publications.
- In 1993, SOCPA's Board of Directors enacted Decision No. 4/2 dated 29/6/1414 A.H. (1993) which stated the foundation, objectives and structure of six technical committees working under the supervision of SOCPA. These committees include (1) Accounting Standards Committee, (2) Auditing Standards Committee, (3) Training and Education Committee, (4) CPA Examination Committee, (5) Professional Ethics Committee, and (6) Quality Review Committee.
- In 1993, SOCPA's Board of Directors enacted Decision No. 4/2/3 dated 15/5/1414 A.H. (1993) which requires Saudi Companies to use US Generally Accepted Accounting Principles (GAAP). However, this memorandum is effective only until SOCPA creates its own standards.

- In 1994, SOCPA issued its first standard; "Quality Control Standard for the Certified Public Accountants Firms". This standard became mandatory by SOCPA's Decision No. 3/3 dated 26/1/1415 A.H. (1994) and required CPA firms to establish adequate quality control policies and procedures necessary to provide reasonable assurance that they meet their responsibilities to clients and the public.
- A principal factor in maintaining high professional standards of practice was the development of "A Code of Professional Ethics" in 1994 under the leadership of the Professional Ethics Committee. This code was endorsed by SOCPA's Decision No. 3/5 dated 27/4/1415 A.H. (1994). It provides practical guidance to individual members in maintaining a professional attitude. In a broad sense, this code sets forth the basic responsibilities of CPA firms to the public, clients and fellow practitioners.
- By mid-1997, a total of 6 standards had been developed. These standards, which become mandatory by the end of 1998, are: (1) Foreign Currency Translation, (2) Inventories, (3) Cash Flow Statements, (4) Related Party Disclosures, (5) Preliminary & Pre-operating Expenses, and (6) Auditing Electronic Data Processing

(EDP) Activities[70]. However, apart from these standards, SOCPA's Decision No. 4/2/3 dated 15/5/1414 A.H. (1993) requires the financial statements of Saudi joint stock companies to be prepared in accordance with the 1986 "General Standard of Presentation and Disclosure" and US Generally Accepted Accounting Principles (GAAP).

4.3.2 Financial Accounting and Reporting Practices

Financial reporting in Saudi Arabia has long been criticised by practising accountants and academicians as well as by individuals and groups outside the accounting and auditing profession. This criticism has been based on grounds that the financial statements of Saudi companies are based upon what can be termed as 'imported accounting standards' and so, the information provided by these statements is misleading, inadequate, and above all, not homogenous. Merei (1985, p. 43) when referring to these imported standards stated:

> **Since the Tax Authority has not yet defined the term "internationally accepted", any support for an accounting treatment is accepted. Some firms in Saudi Arabia make reference to the standards issued by the International Accounting Standards Committee; others are using the US Generally Accepted Accounting Principles (GAAP); a few are using Canadian Standards; possibly others use the British GAAP.**

[70] Detailed discussion of these standards is beyond the scope of the present study.

Another recent insight with respect to the application of imported accounting standards in Saudi Arabia was provided by Al-Rehaily (1992)'s survey. Al-Rehaily found that International Accounting Standards (IASs) were widely used by practitioners in Saudi Arabia, followed respectively by the US and UK Generally Accepted Accounting Principles (GAAP). Al-Rehaily also demonstrated that the "quality" of financial reporting in Saudi Arabia varies considerably from one company to another. He examined the accounting systems of 25 Saudi industrial joint-stock companies and found that, contrary to the requirements of the 1986 Ministerial decision concerning "Statement of Financial Accounting Objectives, Concepts and General Standard of Presentation and Disclosure", some reports such as the statement of changes in owners' equity and the statement of sources and applications of funds, were not commonly prepared. In this context, we also examined the 1995 financial statements of 48 Saudi joint stock companies and found that, contrary to the requirements of the Ministerial Decree No 104, 16 companies still treated the annual Zakat as income distributions rather than as an expense.

4.4 THE STOCK MARKET

The Saudi Arabian stock market is in its early stages of development. In 1975, there were 14 listed Saudi joint stock companies with a combined

paid-up share capital of SR 2 billion. However, prior to 1984, stock trading in Saudi Arabia was unregulated. At that time, prospective buyers and sellers had to search for brokers who were unregulated and informally trading in stocks. In June 1984, the Government introduced the first regulations which limited brokerage activities to domestic banks and required listed companies to publish quarterly financial statements (Al-Saleh, 1997). In 1990, the Saudi Arabian Monetary Agency (SAMA) required all shares to be traded through domestic banks and share ownership to be registered with the Saudi Share Registration Company (SSRC) which is wholly-owned by the eleven national banks. The domestic banks' franchise and SSRC are linked electronically with the central computer at SAMA. In discussing the process by which shares are bought and sold in Saudi Arabia, SAMA (1993) states:

> **..., buyers and sellers place their orders with the banks which, in turn, process the transactions through their Centralised Trading Units (CTUs). Once the bid and offer is matched, a deal is struck. The flow of information passes through the SAMA Banking Technology Processor to SSRC where hard copy print outs are produced next day. Banks send their representatives to collect applications (*Ishaarat*) for onward delivery to the buyer...Unmatched bids and offers are kept in the electronic market until either matched by the system or taken out from the market by the CTU traders. If the buyer wishes to have share certificates instead of *"Ishaarat"*, then SSRC sends share certificates to the issuing company which endorses them and sends them back to SSRC for delivery** (Saudi Arabian Monetary Agency, *the Saudi Stock Market*, the Kingdom of Saudi Arabia, Riyadh: SAMA, p.181).

At the end of 1995, there were 69 publicly listed companies. Table (4.1) shows the total volume and value of the traded shares of the 69 companies for the 1995 fiscal year.

Table (4.1)

Number of Saudi joint stock companies classified by economic sectors and their shares traded in 1995[71]

Economic Sectors	Number of Companies	Shares Traded			
		Volume (Million Shares)	%	Value (SR Million)	%
Banks	11	27,190	23.3	7,832	33.7
Electricity	10	1,326	1.2	120	0.5
Agriculture	9	5,279	4.5	288	1.2
Services	16	35,203	30.2	3,199	13.8
Industry	23	47,620	40.8	11,787	50.8
Total	**69**	**116,618**	**100**	**23,226**	**100**

In common with some stock markets in less developed countries, the Saudi stock market has been characterised by 'irrational expectations' [Al-Saleh (1997); Al-Rwita (1993); Azzam (1993); Butler and Malaikah (1992); Abdelsalam and Satin (1991 and 1988)]. This characteristic may be attributable to the following factors:

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[71] Council of Saudi Chambers of Commerce & Industry, *Saudi Corporations: Financial Data and Analytical Indicators (1993-1995)*, (the Kingdom Saudi Arabia, Riyadh: Research Department, CCI, Edition No. 9, 1996), p. 284.

1. The current share trading system is operationally inefficient. This is evidenced by the fact that: (i) orders of buyers and sellers often take several days before they are filled, and (ii) such orders are often matched in banks rather than through the SSRC's central exchange (Butler and Malaikah (1992). The following three striking characteristics of the Saudi stock market also enhance the operational inefficiency problem (Al-Rwita, 1993). First, there is no information intermediary industry and/or specialised financial publications. Second, there are no specialised analysts promoting liquidity. Third, there are no official market makers specialised in establishing an effective market for corporate control. Typically, the result of these institutional factors is imperfect access to information needed by participants in the stock market, poorly monitored share prices, and a low degree of control over corporate managers' behaviour. This, in turn, reduces liquidity and efficient pricing. As Butler and Malaikah (1992, p. 210) stated: "institutional factors contributing to operational inefficiency in Saudi Arabia...have a major impact on the allocational efficiency of the Saudi stock market".

2. At the end of 1995, about one-third of the shares of publicly traded companies or about 40 percent of the stock market's capitalisation was

owned by the Saudi Government[72]. This means political conditions often have a strong impact on share prices. For example, the number of transactions dropped from about 150,000 per month in 1981 to about 750 transactions during the years 1984 to 1985 when the Government's oil revenues and economic activity were very weak (Al-Dukheil, 1988, p. 53). Another example is that the NCFEI[73] index dropped by 10 percent in the third quarter of 1990, reflecting the political and economic uncertainty arising out of the Gulf crisis. Furthermore, the existence of the six semi-government specialised credit institutions which grant interest free loans to individuals and companies has reduced the importance of the Saudi stock market as a mechanism for raising capital; i.e. it has reduced the importance of competition in both the stock and loan markets.

3. Share trading is restricted to Saudi citizens and, in a few cases, citizens of other Gulf Co-operation Council (GCC) countries[74]. Most Saudi investors do not have training in accounting and therefore are unaware of the

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[72] The figures presented in this sentence are an amalgamation of our own research and information taken from Council of Saudi Chambers of Commerce & Industry, *Saudi Corporations: Financial Data and Analytical Indicators (1993-1995)*, (the Kingdom Saudi Arabia, Riyadh: Research Department, CCI, Edition No. 9, 1996)

[73] The NCFEI index was initiated by the National Center for Financial & Economic Information at the Ministry of Finance and uses the methodology of the Standard and Poor's index of the US stock market.

[74] The first time non-Saudi citizens were allowed to purchase Saudi stocks was in 1984 when a specific portion of SABIC's shares were made available to citizens of other GCC countries (Kuwait, Qatar, the United Arab Emirates, Bahrain and Oman).

importance of understanding and interpreting financial reports properly. This is compounded by the fact that financial reports of Saudi companies, which are generally based upon 'imported accounting standards', provide heterogeneous information, and "disclose less information with a greater time gap than is the norm in most developed markets" (Al-Rwita, 1993, p. 17)[75].

Because the sample used in our empirical analysis is selected from publicly traded Saudi joint stock companies operating in the agricultural, industrial and services sectors, it may be useful if we[76] shed some light on the characteristics of these three sectors and the size and variety of the joint stock companies of which they are comprised.

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[75] The presence of naïve investors as well as the absence of homogeneous financial information may explain why "[e]xcessive speculation and inflated share prices have been a continuous feature of the Saudi stock market" (Al-Rwita, 1993, p. 11), and why Abdelsalam and Satin (1991 and 1988), in their empirical studies of the impact of Saudi Companies' financial reports on stock prices, found that published earnings information has no effect on either share prices or share trading volume.

[76] The following figures and discussion of the Saudi private sectors are an amalgamation of our own research and information taken from: (1) Council of Saudi Chambers of Commerce & Industry, *Saudi Corporations: Financial Data and Analytical Indicators (1993-1995)*, (the Kingdom Saudi Arabia, Riyadh: Research Department, CCI, Edition No. 9, 1996); (2) Saudi Share Registration Company (SSRC), *Saudi Corporations: General information, Financial Data and Analytical Indicators,* (The Kingdom of Saudi Arabia, Riyadh: SSRC, June 1996); and (3) the Saudi Arabia Monetary Agency (SAMA), *Annual Report No. 32*, (the Kingdom of Saudi Arabia, Riyadh: SAMA, 1996). Other references will be cited directly.

4.4.1 The Agricultural Sector

The Saudi agricultural sector has grown rapidly since 1970 when the Government first decided to foster agricultural and industrial development. In general, the best way to look at the agriculture sector is through its four distinct characteristics.

First, by the end of 1995, there were 9 agricultural companies whose shares were publicly traded. These 9 companies had a combined paid-up share capital of SR 1.9 billion, of which about 9 percent was owned by the Saudi Government.

Second, although the agricultural sector's share of total GDP rose from 3.9 percent in 1975 to, on average, 13 percent during the 1985-1990 development plan, this strong performance has been, to a great extent, traced to the Government's programme of incentives which can be classified into three parts: a price support policy; extensive state subsidies; and a land distribution and reclamation programme. On the price support side, the Saudi Government as represented by its agency, the **Grains, Silos and Flour Mills Organization (GSFMO)**, has implemented a price support policy which involves the purchasing of local wheat and barley at guaranteed prices which are above the world market prices for these products.

Since its inception in 1964 and to the end of 1993, the **Saudi Arabian Agricultural Bank (SAAB)** has also granted interest free loans and subsidies valued at SR 27.5 billion to agricultural organisations. These loans are provided for a variety of purposes ranging from the purchase of farm machinery to the construction of large-scale dairy projects.

In addition to the above incentives, in 1968 the **Ministry of Agriculture and Water** started a land distribution and reclamation programme with the objective of disbursing reclaimed land to Saudi citizens for cultivation and to joint stock companies for the establishment of large-scale agricultural projects. Between 1968 and to the end of 1994, over 2.4 million hectares were distributed; the share of the agricultural companies in this land distribution programme reached more than 261 thousand hectares.

The third characteristic of the Saudi agricultural sector is that it had been considered the least developed sector of the economy during the 1990-1995 development planning period. Its share of total GDP declined from 15.4 percent in 1987 to 8.9 percent in 1994. This poor performance might be partially due to political factors that arose after the Gulf crisis in 1990. However, during the first year of the 1995-2000 development plan, an extreme decline in the growth of the agricultural sector became much more visible than at any time before. This is indicated by the fact that the total net

profits of the nine agricultural companies was over SR 128 million in December 1994, before falling to a total loss of SR 82.6 million by the end of 1995. Table (4.2) gives details of the net profit/loss of each company during the 1994 and 1995 fiscal years.

Table (4.2)

The nine agricultural joint stock companies and their performance during the 1994 and 1995 fiscal years

Name of Companies	Net Profit (Loss) as at 31/12/1994 (SR Million)	Net Profit (Loss) As at 31/12/1995 (SR Million)
1. NADEC	54.5	49.3
2. GACO	(23.7)	(37.6)
3. HADCO	22.6	(124.2)
4. TADCO	53.5	5.8
5. Saudi Fisheries	11.4	9.3
6. Eastern	3.4	(0.6)
7. Al-Jouf	5.4	7.7
8. Beshah	(2.7)	(4.0)
9. Jazan	4.1	11.7
Total	**128.5**	**(82.6)**

The last major characteristic is that the agricultural sector is dominated by two companies; the Saudi Fisheries Company and the National Agricultural Development Company (NADEC). In December 1995, 40 percent of the total shares of the Saudi Fisheries Company was held by the Saudi Government. NADEC had, in December 1995, the largest

total capital of all the agricultural companies valued at SR 400 million, of which 20 percent was owned by the Government.

4.4.2 The Industrial Sector

Since the mid-1970s Government planning has primarily been directed at diversifying the Kingdom's economic structure. Since that time and up to the present, the industrial sector is widely perceived as being the most likely route to reduce the Kingdom's excessive dependence on oil and to create self-sustaining economic activities that are not directly affected by fluctuations in world oil prices. Therefore, the industrial sector has long been perceived as a critical component of the Saudi economy in need of extensive government support. Hence, this sector benefits from medium- and long-term interest free loans of up to 60 percent of the total cost of new industrial construction, expansion, modernisation and renovation schemes. In addition, Government instrumentalities provide subsidised land leases, a 20 percent protective duty in the early stages of production, exemption from tariff duties on most imported raw materials and machinery and subsidised fuel and electricity.

As a result of this wide range of government incentives and benefits, the industrial sector is now considered to be the largest sector in terms of the size and variety of joint stock companies. By the end of 1995, there were 40

industrial joint stock companies with a total paid-up capital of SR 23 billion. These 40 companies are operating in three different industrial sub-sectors; conversion industries, cement and building materials and oil and gas.

1. **The conversion industries** consist of 24 companies which, as can be seen from Table (4.3), account for about 66 percent of the total capital of the industrial sector. This sub-sector also occupies the leading position among all economic sectors in terms of the size of the Government's loan commitments. Since its inception and up to the end of 1994, the **Saudi Industrial Development Fund (SIDF)** approved long-term loans to projects in this sub-sector amounting to SR 6.6 billion or 37.5 percent of the Fund's loan commitments to all industrial projects.

Table (4.3)

The number of industrial joint stock companies and their capital classified by economic sub-sector

Economic Sub-Sector	Number of Companies	Total Paid-In Capital (SR Million)	%
1. Conversion Industries	24	15,174	66
2. Cement and Building	11	7,080	31
3. Oil and Gas	5	740	3
Total	**40***	**22,994**	**100**

*** This figure includes three new companies established in 1995: two being conversion industries and one being a cement company.**

Of these 24 conversion companies, 11 companies were publicly traded on the stock market by the end of 1995. The remaining 13 companies

were either new companies or privately held[77]. The eleven publicly traded companies produce a wide range of products including petrochemicals, fertilisers, iron and steel, aluminium, hydrocarbons, plastics, paper, engineering products, food and beverages and pharmaceuticals and other medical products. By the end of 1995, their annual sales were worth more than SR 27 billion. These eleven conversion companies were, however, dominated by just two companies; the Saudi Basic Industries Corporation (SABIC) and the Food Products Company, with total paid-up capital, which in December 1995, was 70 and 15 percent state owned, respectively.

2. **The cement and building materials sub-sector** consists of 9 cement companies and 2 building materials companies. Apart from a new cement company established in 1995, the remaining ten companies are publicly traded in the stock exchange and, in 1995, their total paid-up share capital was about SR 6.9 billion, of which more than 13 percent was owned by the Saudi Government. Table (4.4) gives details of the total paid-in capital and net profits of these ten companies as at 31 December, 1995. This Table shows that the Yamama Cement Company is the largest

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[77] Article No. 100 of the 1992 Companies Act states, "Cash shares subscribed for by the founders and shares for contributions in kind, as well as founders' shares shall not be negotiable before the publication of the balance sheet and the profit and loss statement [s] for two complete financial years, each consisting of at least twelve months as from the date of incorporation of the company".

in terms of profitability with about 19.3 percent of the total net profits, followed by the Saudi Cement Company with 19.2 percent and the Southern Cement Company with 17.4 percent.

Table (4.4)

The total capital and net profits of the ten cement and building materials companies as at 31 December, 1995

Name of Companies	Total Paid-In Capital (SR Million)	%	Net Profit (SR Million)	%
1. Arab Cement	600	8.6	133.1	6.8
2. Yamama Cement	900	13.0	380.2	19.3
3. Saudi Cement	1,591	22.9	377.6	19.2
4. Qaseem Cement	450	6.5	160.3	8.1
5. Southern Cement	700	10.1	342.1	17.4
6. Yanbu Cement	1,050	15.2	157.3	8.0
7. Eastern Cement	645	9.3	284.7	14.4
8. Tabouk Cement	700	10.1	53.2	2.7
9. Saudi Ceramic	150	2.2	39.4	2.0
10. National Gypsum	144	2.1	43.3	2.1
Total	**6,930**	**100**	**1971.2**	**100**

3. **The oil and gas sub-sector** is comprised of five large-scale oil and gas joint stock companies with total share capital of SR 724 million, of which more than 30 percent was owned by the Saudi Government in December 1995. However, of these companies only two are publicly traded on the Saudi stock market; the Saudi Arabian Refinery Company (SARCO) and the National Gas and Industrialisation Company (GASCO). SARCO was

established in 1959 to work in all petroleum-related activities, including the procurement, transportation, refining and marketing of oil. By 1995 its total capital was SR 40 million and its annual net profit was close to SR 8 million. GASCO began business in 1976. Its main activities include the production, marketing and distribution of gas, locally and abroad. By 1995 its total capital was SR 500 million, of which more than 15.5 percent was owned by the Saudi Government.

4.4.3 The Services Sector

At the same time that the Saudi Government was implementing programmes designed to foster agricultural and industrial development, it was also pursuing policies to encourage the services sector. The best way to look at this sector is through the size and variety of the major service joint stock companies.

By the end of 1995, there were 24 services companies with a total paid-up share capital of SR 11 billion, annual sales of SR 4.5 billion and total net profits of SR 591.4 million. However, of these 24 companies, only 16 are traded on the Saudi Stock Exchange. The activities of these publicly traded services companies include wholesale and retail trade, transport and communication, hotels and restaurants and reconstruction, acquisition, hiring, and management of lands and commercial and residential buildings.

In general, the services sector is dominated by ten publicly traded companies. Table (4.5) shows the total paid-in capital of these ten services companies and gives details of their total sales and net profits as at 31 December, 1995.

Table (4.5)

The total capital and sales and the net profits of the ten large services companies as at 31 December, 1995

Name of Companies	Total Paid-In Capital (SR Million)	%	Total Sales (SR Million)	Net Profit (SR Million)
1. NSCSA	1,994	20.9	1,080	11.6
2. MAKKAH	1,387	14.5	146	113.0
3. Al-Mawashi	1,009	10.6	421	18.3
4. Riyadh Develop.	1,000	10.5	41	32.2
5. SAPTCO	1,000	10.5	527	64.2
6. Al-Azizia Panda	900	9.4	495	66.7
7. Taibah	737	7.7	78	51.2
8. SRECO	600	6.3	100	48.1
9. Saudi Hotels	500	5.2	135	40.5
10. SASCO	420	4.4	90	14.1
Total	**9,547**	**100**	**3,113**	**459.9**

The total paid-up share capital of these ten large companies accounts for 87 percent of the services sector's total capital. In 1995, these companies also generated 68 percent of the sector's total sales. Furthermore, as of December 1995, 18 percent of the total paid-up share capital of these ten service companies, which represents 15 percent of the whole sector's total capital, was owned by the Saudi Government.

4.5 THE LABOUR MARKET

The Saudi labour market may best be discussed through the following three important characteristics:

1. One major feature of the labour market in Saudi Arabia is the threat to high-level Saudi manpower, defined in its broadest context to include managers and technicians. At the end of 1994 the civilian workforce, as derived from US sources, was estimated to be 5.5 million, of whom 2.8 million (51%) were non-Saudis. At present, almost all firms operating in the private sector rely on foreign managers and technicians. In this context, Wright, Khashoggi and Vaughn (1996, pp. 99-100) write:

> **...thousands of expatriates coming to Saudi Arabia... and agriculture, construction, engineering and maintenance are dependent by as much as 60-90 per cent or more on foreign labour,..., compared with 8-12 per cent in 1963.**

2. The last official census, which was conducted in 1992, showed the Saudi population to be 12.3 million, of whom around 7.4 million (60%) were under 12 years of age[78]. This young generation is having a profound impact on Government plans in general, and on economic development in particular. Under the 1995-2000 development plan, the Saudi workforce is targeted to expand at an annual rate of 4%. The Government now

[78] **Op. Cit. (59), p. 178.**

requires that 75% of all employees in an entity should be Saudi citizens and/or that 51% of a business's payroll should be paid to Saudis. This condition is reflected by the Government's commitment to continue the 'Saudization' of the labour force by modifying the education curricula and encouraging the private sector to provide training programmes and job opportunities for Saudi citizens. In this context, Garawi and Schmidt (1996, p. 87) state:

> **Saudi Arabia's strategy for overcoming deficiencies in both the quality and quantity of human resources is well known: after decades of importing labour a policy of 'Saudization', or replacing foreign employees with Saudi workers, is now in place.**

3. The Saudi Government has long been guaranteeing employment for every Saudi university graduate. The result of this is a large number of low-productive public sector jobs. This is coupled with the Government's failure: (1) to develop well functioning capital markets which are fundamental "for the managerial labor market's evaluation of the firm's management" (Fama, 1980, p. 292), and (2) to provide information regarding managerial job opportunities, managers' qualifications, and managerial turnover.

4.6 CONCLUDING REMARKS

As the primary purpose of this chapter is to provide a good understanding of the environment in which the research is conducted, this

section summaries the Saudi Arabian environment in terms of six basic characteristics. These six characteristics are written on the basis of their importance to the development of our research hypotheses which are discussed in the following chapter.

1. The Kingdom of Saudi Arabia is an absolute Islamic monarchy. Its constitution is based on *Al-Qura'n Al-Karim* and *Al-Sunna Al-Sharifa* and defines the powers and duties of the King. The Council of Ministers is presided over by the King, who is also responsible for selecting its members. There are no political parties, unions or franchises in the Kingdom of Saudi Arabia. However, the establishment of *Majlis al-Shura* (the Consultative Council), *Majlis Hay'at Kibar al-Ulama* (the Council of the Assembly of Senior *Ulama*) and the *Nizam al-Muqata'at* (provincial government) is intended to enable selected sectors of the population to participate in the formulation of the Kingdom's foreign and domestic policies and to bring their views to the Government's attention. Members of these Government Councils, as well as the Princes of the ruling family, exert significant influence over the Kingdom's political, legal and economic systems. Therefore, they are always the focus of public attention.

2. The economy of Saudi Arabia has been developed through a series of five-year plans, the first of which commenced in 1970. The sixth five-year development plan, covering the period 1995-2000, officially commits the Government to four principal economic goals: (1) a balanced budget, (2) further privatisation, (3) an end to the subsidisation of Saudi industry and public utilities, and (4) the replacement of foreign labour by Saudi workers. These represent significant changes to the goals of earlier development plans, probably reflecting the public antagonism toward the Government which took place during and after the 1990 Gulf crisis.

3. By the end of 1995, there were 94 Saudi joint stock companies with a combined paid-up share capital of SR 72.9 billion. In December 1995, 69 of these 94 Saudi joint stock companies were traded on the Saudi stock market, with a total capitalisation of SR 155.9 billion. These traded companies were operating in five different sectors; 11 banks, 10 electrical companies, 9 agricultural companies, 23 industrial companies and 16 services companies. The most important characteristics of these 69 companies are the following: (1) they have benefited from extensive government support and financial contributions expressed in terms of medium- and long-term interest free loans, reclaimed land and subsidised

fuel and electricity; (2) as of December 1995, one-third of their shares (about 40 percent of the stock market's capitalisation) was held by the Saudi Government, and (3) they rely heavily on foreign managers and technicians.

4. The total volume and value of the traded shares of the 69 Saudi companies for the 1995 fiscal year were 116,618 million shares and SR 23,226 million. SAMA (the kingdom's central bank) requires all shares to be traded through Saudi banks and that share ownership must be registered with the Saudi Registration Company (SSRC). The most striking characteristic of the Saudi stock market is its 'irrational expectations'. This characteristic can be attributed to the following: (1) the operational inefficiency of the current share trading system, (2) the heavy involvement of the Government, (3) the absence of specialised analysts and official market makers, (4) the presence of naïve investors, and (5) the absence of homogenous financial information and specialised financial publications.

5. According to the last official census, the Saudi population is estimated to be 12.3 million, of whom around 7.4 million (60%) are under 12 years of age. This young generation is placing a considerable political and economic strain on the Government. To cope with this problem, the

1995-2000 development plan now requires that 75% of all employees in an entity operating in the private sector should be Saudis and/or that 51% of a business's payroll should be paid to Saudi citizens. However, the Saudi labour market is still suffering from the absence of official information regarding, for example, job opportunities and managerial job qualifications.

6. The accounting and auditing profession in Saudi Arabia is still in its infancy. Before the promulgation of "Accounting Objectives and Concepts and General Standard of Presentation and Disclosure" and "Auditing Standards" in 1986, there was no legislation dealing specifically with accounting and auditing practices except for a few rules to be found in the Income Tax and Zakat Law and the Companies Act. In 1992, the Saudi Organization for Certified Public Accountants (SOCPA) was established by the Saudi Government with the principal objective of setting accounting and auditing standards. Since its inception, SOCPA has issued eight standards, six of which will be effective in 1998. Until a comprehensive set of standards exist, SOCPA requires the financial statements of Saudi joint stock companies to be prepared in accordance with the 1986 "General Standard of Presentation and Disclosure" and US Generally Accepted Accounting Principles (GAAP).

CHAPTER FIVE:

FORMULATION OF HYPOTHESES

5.0 INTRODUCTION

The belief that management's accounting policy choices are likely to be affected by the political and regulatory environment in which companies operate and the financial contracts (debt and compensation contracts) into which they enter has provided an extensive source of testable hypotheses. In this context, we address the question of whether or not managers of Saudi companies use economic criteria in choosing their accounting procedures. The answer to this question is intended to provide empirical evidence on our general research question, whether or not the accounting standards which exist in Saudi Arabia give rise to economic consequences.

Having introduced the Saudi Arabian environment in the previous chapter, we now devote this chapter to linking the Saudi socio/economic environment to the political and contractual cost frameworks proposed by the positive accounting theory. Such a linkage motivates us to develop five hypotheses and is intended to provide a general frame of reference against which these five hypotheses can be assessed.

5.1 THE POLITICAL COSTS FRAMEWORK

In Saudi Arabia there are a number of distinct groups who have a considerable influence on the nation's political and legal systems in general and on the economic system in particular. The first group includes the

Princes of the ruling family who hold the true reins of power by virtue of their relationship with the Kingdom's founder, King Abd al-Aziz, and also because of their specific ministerial posts. The second group consists of the members of *Majlis al-Shura* (the Consultative Council) and *Majlis Hay'at Kibar al-Ulama* (the Council of the Assembly of Senior *Ulama*) who are selected by the King and chosen for their ability, experience and integrity. The members of this group enjoy special status and control all aspects of everyday life in Saudi Arabia by virtue of the great respect in which they are held, and their ability to access the King and all the senior Princes and Ministers. The last group includes individual ministers and powerful state officials whose views, whilst influential, hinge on their government position as well as their relationship with the King and senior Princes.

The members of these three distinct groups are always the focus of public attention. Following the positive accounting theory, one may call these members the politicians and Government bureaucrats in Saudi Arabia, and assume that they, like everyone else, act to maximise their own welfare and hence "have incentives to seek wealth transfers via the political process" (Watts and Zimmerman, 1986, p. 226). In the period 1991-1994 which immediately followed the Gulf crisis, the Saudi Government was confronted with severe public criticism regarding the internal political and

economic situation. This placed a heavy strain on the Government. Given that, by assumption, it is costly for individuals to gather information regarding the causes of the poor economic performance, and individuals have little incentive to incur such information costs, this public antagonism toward the Government has induced some politicians and Government bureaucrats in Saudi Arabia to create impressions of impending disaster (crises). These crises, in turn, have provided opportunities for them to come to "the rescue" with the 1995-2000 development plan. The principal economic goals of this five-year development plan are to end the subsidisation of Saudi industry, the further privatisation, the replacement of foreign labour with Saudi citizens (Saudization), and a balanced budget.

There is no doubt that the 1995-2000 development plan is a politically sensitive subject in Saudi Arabia. More specifically, the goals of this five-year plan encompass potential wealth transfers (political costs). On the one hand, the goals of 'an end of subsidisation' and 'privatisation' will enable the Government to reduce its budget deficits. Against this, they will increase the uncommitted financial resources available to the Government and hence the resources controlled by politicians and Government bureaucrats. In addition, these two goals, as well as the 'Saudization' goal, provide an opportunity for politicians and Government bureaucrats: (1) to reduce public

antagonism toward them and hence increase the probability of their re-appointment, and/or (2) to reduce the chance of the termination of their appointments.

On the other hand, the goals 'an end of subsidisation', 'privatisation', and 'Saudization' will impose unfavourable wealth transfers on firms operating in the private sector. First, consider the strategic economic goal of 'an end to subsidisation'. Once this goal takes place, the extensive government support and financial contributions which include medium- and long-term interest free loans, reclaimed land and subsidised fuel and electricity, will no longer be available to Saudi companies. As a consequence, companies which are used to relying on these government assistance programmes will have to: (1) borrow from banks and hence pay interest if they want to finance their short- and long-term projects, and/or (2) raise the prices of their goods and services which may lead to losses and consumer dissatisfaction, at least in the short-run. Second, one aspect of privatisation is the sale of state-held shares. Given the characteristics of the Saudi stock market and that one-third of Saudi companies' shares (about 40 percent of the stock market's capitalisation) is held by the Saudi Government, there exists some probability that the sale of state-owned shares will lead to lower stock prices. Third, another aspect of privatisation

is deregulation of monopolies, i.e. forestalling monopoly activities and enhancing competition. This implies that the Saudi Government will encourage other firms to enter the affected industries; and therefore, there will be a possibility that the value of the existing companies' shares will decline. Last, the 1995-2000 five-year development plan commits the Government to one key principle favoured by the public but not by firms: the replacement of foreign labour by Saudi citizens (Saudization). Given that almost all firms operating in the private sector rely heavily on foreign managers and workers, and that the Saudi Government now requires that 75% of all employees in a firm operating in the private sector should be Saudis, the 'Saudization' goal will place a considerable financial burden on firms' payrolls because: (1) Saudi workers with equal qualifications and experience with foreign workers tend to require higher salaries, and (2), in some circumstances, firms may allocate resources and incur considerable costs to improve the skills of their potential Saudi workers.

5.1.1 Political Costs Hypotheses

The above analysis motivates us to hypothesise that once the 1995-2000 five-year development plan is implemented, some Saudi companies will bear considerable political costs; and as a consequence, these firms will have an incentive to forestall the 1995-2000 plan or at least delay its

implementation. In this context, Government bureaucrats appointed to administer the 1995-2000 plan generally use the numbers in financial accounting reports as a guide for determining when and how the principal economic goals of the 1995-2000 plan are to be assessed and implemented. More specifically, Government bureaucrats place particular attention on Saudi firms' reported earnings. Hence, one would expect that managers of Saudi companies which are more likely to be affected by the political costs of the 1995-2000 plan will have an incentive to adopt accounting policies that decrease current reported earnings, i.e. lower reported earnings will reduce the likelihood that Government bureaucrats will implement the 1995-2000 plan. Given that, by assumption, monitoring costs in the political process are non-zero and that there is some probability that Government bureaucrats will not adjust the reported profits to undo the effect of managers' earnings reducing accounting policies, we expect that managers of the affected Saudi firms will use accounting policies that report lower earnings during the period 1995-2000.

Watts and Zimmerman (1978) and others argue that large companies are more politically visible than small companies and thus are more likely to be subject to wealth transfers resulting from Government intervention. It is hypothesised that managers of those companies have incentives to favour

income-reducing accounting policies because such policies minimise the possibility of government intervention and thus minimise the effect of wealth redistribution away from the companies and the salaries and emoluments the managers receive. In general, this hypothesis is supported by the results of numerous studies [e.g. Holthausen and Leftwich (1983), Watts and Zimmerman (1986 and 1990), Christie (1990, Table 1)]. We suggest that the size variable might also be a relevant proxy for Saudi companies' political visibility. As already noted above, Saudi Government bureaucrats generally use reported accounting earnings as a guide for determining when and how subsidisation will be ended, when the state-owned shares will be sold, and the possibility of imposing more regulations regarding the replacement of foreign labour with Saudi citizens. In this context, there is a possibility that Saudi Government bureaucrats place particular attention on reported earnings of large Saudi companies; and as a consequence, managers of those companies may attempt to adopt accounting policies that reduce current accounting earnings, thereby reducing their political visibility. This line of reasoning motivates us to test the following hypothesis:

H1 : Ceteris paribus, the larger a company's size, the more likely the company's managers are to choose accounting policies that decrease current reported earnings.

Generally speaking, given that the size variable is likely to be one of the most important determinants of accounting policy choice, we need to be extremely cautious in assuming that Saudi companies' political visibility is a function of size alone:

> **..., political costs are likely to be a function of numerous factors-of which size may be only one. For example, the nature of the industry (capital- vs. labour-intensive, strategic importance), the number of employees and customers (potential voters), geographical location (managerial vs. electorate), and time (impending election) may all be important determinants of the level of political costs** (Whittred and Zimmer, 1988, p. 37).

As the above quotation implies, companies' accounting policy decisions are explicitly or implicitly related to the environment in which they operate. In this context, two political environment-oriented variables of direct concern are introduced as likely to be relevant proxies for Saudi companies' political visibility. First, we hypothesise that companies which have Government debts and/or donations in their capital structures will incur relatively larger political costs than other companies. As we have noted in section 5.1, this is because the implementation of the 'an end of subsidisation' goal will force companies, which are used to relying on the extensive Government support and financial contributions, to: (1) borrow from banks and hence pay interest, and/or (2) raise the prices of their goods and services and hence bear losses and incur consumer dissatisfaction, at least in the short-run.

Second, the implementation of the 'Saudization' goal may also generate another component of political costs which may be borne by some Saudi companies. As already noted in section 5.1, once this goal takes place, Saudi companies which rely heavily on foreign employees will have to allocate resources and incur considerable costs in order to appoint Saudi workers and improve their skills. This motivates the hypothesis that the higher a company's foreign employees/total employees ratio, the higher are the potential political costs that the company will have to bear. Collectively, Saudi companies with these two specific characteristics will bear relatively larger wealth transfers (political costs) as a result of the Government's 1995-2000 development plan; and as a consequence, managers of these firms will have an incentive to forestall, or at least delay, the implementation of the plan. One tactic managers of these firms can employ to forestall/delay the implementation of the 1995-2000 plan is by using accounting policies that reduce current reported earnings. The reasonableness of this tactic is clear when one considers: (1) the fact that Saudi Government bureaucrats appointed to administer the 1995-2000 plan generally use Saudi companies' reported earnings as a guide for determining when and how the principal economic goals of the 1995-2000 plan will be assessed and implemented, and (2) the possibility that Government bureaucrats will not adjust the

reported earnings to undo the effect of managers' income reducing accounting policies. The following hypotheses are based on this line of reasoning:

H2 : Ceteris paribus, managers of companies with Government debts and/or donations are more likely to select accounting policies that decrease current reported earnings.

H3 : Ceteris paribus, the larger a company' s foreign employees/total employees ratio, the more likely the company's managers are to use accounting policies that decrease current reported earnings.

5.2 THE CONTRACTING COSTS FRAMEWORK

As we have noted in chapter two (section 2.3.3), the positive accounting theory adopts the view that: (1) a firm is a nexus of explicit and implicit contracts embodying the property rights of all individual participants in that firm, and (2) each set of participants will seek to pursue their own self-interest at the expense of other participants. In the context of a firm in the private sector, the self-interested behaviour of a firm' s participants produces two possible conflicts; the conflict between management and shareholders whereby managers may take decisions that maximise their own expected utility rather than the shareholders' expected utility, and the conflict between shareholders and debtholders whereby shareholders may take decisions that are not in the best interests of debtholders.

5.2.1 Manager-Shareholder Conflicts of Interest

The conflict of interest between a firm's managers and shareholders causes a reduction in the firm's value (the agency costs of equity). Stock and managerial labour markets serve a key role in mitigating these agency costs. In a stock market characterised by rational expectations, managers bear the costs of their value-reducing decisions because "shareholders are price protected... They buy at a price that incorporates" the managers' firm value-reducing decisions (Watts and Zimmerman, 1986, p. 183). Therefore, because they bear the agency costs, managers will have incentives to voluntarily enter into monitoring and bonding contracts which seek to guarantee that they will not exploit shareholders.

Fama (1980) also noted the key role of the market for managerial labour in disciplining management behaviour. He (p.288) argues that managers who own a small percentage of the shares of a firm "face both the discipline and opportunities provided by the markets for their services". The theme that underlies this argument is that, in a perfectly competitive managerial labour market, the present value of managers' future compensation would be adjusted to reflect the costs arising from their opportunistic value-reducing decisions, i.e. managers bear the agency costs arising from their decisions. As a consequence, they will have incentives to

voluntarily enter into bonding contracts and have both their behaviour and those contracts monitored.

5.2.1.1 Contracting Cost Hypotheses

The above interpretation of the disciplinary role of stock and managerial labour markets could be restated to make it potentially valid in the context of Saudi Arabia. That is, if the disciplinary mechanisms of capital and labour markets are weak, managers would have little incentives to pay attention to the costs associated with their firm value-reducing decisions. Given the 'irrational expectations' of the Saudi stock market and the 'thin' nature of the Saudi managerial labour market, we argue that the capacity of the Saudi stock and labour markets to discipline opportunistic managerial behaviour is limited. Now, if this is correct, it can be argued that managers of Saudi companies, compared with managers of firms in well-developed markets, are much freer to practice opportunistic behaviour.

Management compensation packages often include bonus or stock option plans in which financial statement-based variables are a key component. Thus, management's wealth can be affected by accounting policy choices. In this context, management has an incentive to influence the remuneration they receive by choosing accounting policies that are perceived to increase the present value of their compensation packages,

even in the absence of an explicit link between financial statement variables and a management compensation plan. Watts and Zimmerman (1978) were the first to hypothesise that if a company bases its incentive plans on reported earnings, managers would have an incentive to use accounting policies that increase accounting earnings. Although Watts and Zimmerman (1978) find no statistically significant relationship between the presence or absence of an incentive compensation plan and the choice of accounting methods, Christie (1990) finds, in his aggregated study, that managerial compensation is one of six variables with significant explanatory power across the studies he examines. This suggests testing the following hypothesis:

H4 : Ceteris paribus, managers of companies with bonus plans are more likely to choose accounting policies that increase current reported earnings.

Our examination of the annual financial reports of the 69 Saudi joint stock companies which were publicly traded at the end of 1995 reveals that 40 companies had managerial compensation plans and packages in place. This may indicate the importance of ownership structure as an alternative disciplinary force to the stock and managerial labour markets. Again, if this is correct, it can be argued that the lower the percentage of stock owned by directors of a Saudi company, the higher is the probability that the managers

of this company will take decisions (such as accounting policy decisions) which are not in the best interests of the shareholders.

Using the results of Williamson (1964 and 1967), amongst others, Dhaliwal, Salamon and Smith (1982) and Ayres (1986), found that, *ceteris paribus*, managers of owner-controlled (OC) companies are less likely than managers of management-controlled (MC) companies to adopt accounting methods which increase the present value of their compensation packages because high insider ownership reduces the importance of accounting numbers in compensation contracting. The economic logic for this argument is described by Dhaliwal, Salamon and Smith (1982, p. 44) as follows:

> **In OC firms, the owners can motivate and monitor the behavior of managers directly so the need for incentive compensation schemes based upon reported income is not great. On the other hand, the outside owners of MC firms must devise mechanisms to motivate the firm managers to act in a manner which does not ignore the interests of the outside owners. One common mechanism used for this purpose is the adoption of incentive compensation schemes (of either the cash bonus or stock option type) which depend upon reported income. Consequently, it is likely that MC firms are more likely than OC firms to have incentive compensation schemes based upon reported income. This means that the managers in MC firms are more likely to benefit than are the managers of OC firms from the selection of accounting methods which result in high and/or early reported income.**

We follow this line of reasoning in formulating the following hypothesis:

H5 : Ceteris paribus, managers of companies with a lower percentage of stock owned by directors are more likely to select accounting policies that increase current reported earnings.

5.2.2 Shareholder-Debtholder Conflicts of Interest

The conflict of interest between shareholders and debtholders gives rise to the agency costs of debt which typically arise because of, for example, excessive dividend payments, disposal of all or part of the assets of the firm, under-investment, bankruptcy and reorganisation. These agency costs are borne by shareholders if no action is taken to reduce them by monitoring and bonding devices. Therefore, it is assumed that shareholders have incentives to enter into monitoring and bonding contracts which usually include covenants restricting their ability to engage in opportunistic behaviour. Given that almost all Saudi joint stock companies receive most of their external finance from the Government in the form of medium- and long-term interest free loans, we do not believe that Saudi companies' lending agreements include restrictive covenants; in particular, borrowing and dividend limitations[79]. In fact, even if there are restrictive covenants, one would find it very difficult to believe that these covenants exhibit a strong reliance on financial accounting variables, given the limitations of Saudi financial reporting which were described in chapter four (section 4.3.2). Therefore, we do not expect that Saudi shareholders' opportunistic decisions (or managers on their behalf) would be influenced by the

[79] **Note that lending agreements are not publicly published in Saudi Arabia.**

restrictive covenants of their firms' debt contracts as has been hypothesised in North America. However, it should be emphasised that we do expect that this issue will become important when the 1995-2000 development plan goal "an end of subsidisation" is implemented.

5.3 KEY ASSUMPTIONS

In analysing economic factors influencing managerial behaviour, positive accounting studies rely on two core assumptions. First, a company is considered as "a nexus of contracts" embodying the property rights of the various parties that make up the company (Jensen and Meckling, 1976). Second, a company's shareholders and management, and its debtholders are assumed to be (1) aware of the nature of their relation with each other, (2) rational expected utility maximisers who pursue self-interest, and (3) able to form unbiased expectations regarding the company's future value (Whittred and Zimmer, 1988, p.27). This assumption means that managers will exercise divergent behaviour in choosing between accounting policies. This behaviour can be considered *ex-ante* efficient even though consequential *ex-post* opportunism may result. The shareholders and debtholders recognise these tendencies as being contrary to their own interests and hence attempt to partially price protect themselves by assuming an average amount of

opportunism on the part of managers (Watts and Zimmerman, 1990, p.136). To limit management's opportunistic behaviour, shareholders will provide appropriate incentives and incur expenditure in monitoring managers' actions (such as the cost of employing a qualified auditor). The managers may seek to guarantee that they will act in the best interests of shareholders and agree to incur expenditure in bonding themselves (such as the cost of preparing annual financial statements), (Bromwich, 1992, p. 320). Debtholders will similarly seek to limit divergence from their interests. Thus, lending agreements often impose restrictions limiting the opportunistic behaviour by managers in respect of the debtholders' interests. Such restrictions may, for example, limit the managers' ability to pay dividends, issue new debt, and consummate mergers (Holthausen and Leftwich, 1983, p. 86).

These interrelated assumptions are explicitly or implicitly invoked to develop our hypotheses and to interpret the empirical results we obtain. Under the political cost hypotheses, it is assumed that managers of politically sensitive companies have incentives to adopt accounting policies that have the effect of decreasing reported earnings in order to reduce the likelihood of being subject to negative wealth transfers. Underlying these hypotheses is the implicit assumption that politicians and Government

bureaucrats who propose such negative wealth transfers will not adjust for the accounting choices unless the marginal benefits of doing so exceeds the marginal costs.

Management's compensation is often assumed to consist of salaries, bonuses and share options (Watts and Zimmerman, 1978, p. 114). Therefore, where managers are rewarded by accounting-based compensation schemes they will in general seek to choose those accounting policies which maximise the total expected value of these compensations components. However, the compensation plan hypotheses depend on the implicit assumption that either the plans do not specify the accounting policy set *ex-ante* or that the compensation committees who typically administer such plans do not adjust, *ex-post*, for changes in accounting policies.

Finally, managers are assumed to trade-off the expected impact of the economic influences of political costs and compensation when selecting an accounting policy because the selection of a particular accounting policy often has opposing effects on compensation variables versus political variables. For example, the selection of a particular accounting policy may increase benefits under the bonus plan but also increase the probability of political intervention. Thus, managers are assumed to choose the accounting policy that best balances these conflicting interests.

CHAPTER SIX:

RESEARCH METHODOLOGY

6.0 INTRODUCTION

This chapter presents the study design in two sections. The first section outlines the data used in the study and describes the dependent and independent variables used in our empirical work. The second section presents a description of four univariate tests and three types of multivariate analyses used to test the research hypotheses.

6.1 DATA COLLECTION AND VARIABLES SELECTION

The number of joint stock companies in Saudi Arabia has increased substantially in the last fifteen years from 37 joint stock companies with a combined paid-in capital of SR 21.2 billion in 1980, to 94 companies at the end of 1995 with a total capital of SR 72.9 billion. Table (6.1) summaries the 94 Saudi companies with their total paid-in capital as at 31 Dec, 1995.

Table (6.1)

Number of Saudi companies classified by economic sectors[80]

Economic Sectors	Number of Companies	Total Paid-In Capital (SR Million)
Banks	11	13,900
Electricity	10	23,153.38
Agriculture	9	1,875.40
Services	24	11,002.21
Industry	40	22,993.47
Total	**94**	**72,924.46**

[80] **Op. Cit. (71), p. 13.**

6.1.1 Sample Size

Of these 94 joint stock companies, only 69 were listed on the Saudi stock market. The remaining 25 were either new companies[81] or privately held. The sample used in our empirical analysis is selected from the 69 companies listed on the Saudi stock market as of December 31, 1995. Of these 69 companies, however, companies operating in the banking and electrical sectors are eliminated from the sample because they are regulated by special unified accounting rules. Hence, the data on which the study is based are taken from the remaining 48 publicly traded companies for which the 1995 annual reports are available at the commencement of the study and which also disclose their choices of accounting procedures. Our 48-company sample is comprised as follows:

Economic Sectors	Number of companies in sample	Sample as % of total population (69 companies)	Sample as % of total paid-in capital (69 companies)
Agriculture	9	13.04	2.64
Services	16	23.19	14.96
Industry:			
• Cement & Construction	10	14.49	9.73
• Oil & Gas	2	2.90	0.76
• Conversion	11	15.94	18.92
Total	**48**	**69.56**	**47.01**

[81] Op. Cit. (77).

6.1.2 Dependent Variables

To test whether or not managers of Saudi companies use economic criteria in choosing their accounting procedures, it is necessary to select accounting methods which are the most likely to be manipulated. Hence, our choice is limited to three accounting methods. These are the accounting for inventory, research and development and Zakat. The logic behind this limited selection is based on two major criteria. The first emerges from the fact that these three accounting methods have a significant impact on net income and have been most frequently used in a number of accounting policy choice studies[82]. The second criterion is that these methods were exhaustively disclosed in the 1995 annual reports of Saudi companies and had enough variation in their accounting treatment to justify the use of the three types of univariate and multivariate tests which we introduce in the methodology section (6.2).

6.1.2.1 Inventory Methods

The Saudi inflation rate was estimated to have been 1% in 1993, 0.9% in 1994 and 5.1% in 1995[83]. Hence, during this period companies using

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[82] See, for example, Holthausen and Leftwich (1983), Watts and Zimmerman (1986), Christie (1990), and Kadous and Tawfik (1991).

[83] Business Monitor International (BMI) Ltd, *Annual Report on Saudi Arabia 1996-98*, (London: BMI, June 1996) p. 55.

either the average or LIFO methods to account for the cost of goods sold would report lower net income relative to the FIFO method[84]. In our empirical work we therefore treated the average and LIFO methods as income decreasing policies and FIFO as an income increasing policy.

6.1.2.2 Research and Development (R&D) Methods

Accounting for research and development expenditure is chosen as the second accounting policy variable. According to FASB[85] Statement No. 2, *Accounting for Research and Development Costs*, companies are required to expense, rather than capitalise, all research and development costs when incurred. This accounting treatment is contrary to the practice followed by many Saudi companies which capitalise and then subsequently amortise research and development costs. Companies that capitalise R&D costs increase their reported incomes relative to companies which expense R&D costs. Hence, in our empirical work we treated the capitalising method as an income increasing policy and the expensing method as an income decreasing policy.

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[84] Because of the absence of Saudi accounting standards regulating major accounting and auditing practices, SOCPA's Decision No. 4/2/3 dated 15/5/1414 A.H. (1993), which is described in chapter four (section 4.3.1), implies that inventory and R & D expenditure should be accounted for using U.S.A Generally Accepted Accounting Principles, GAAP.

[85] Ibid.

6.1.2.3 Zakat Methods

Finally, the choice of Zakat policy is also selected for investigation. Saudi Arabia is the custodian of the most sacred of Islamic locations, Makkah and Madinah, and actively practises a good form of Islam. This has economic and accounting implications because Islam prescribes social, economic, cultural, civil, and political codes that integrate the Islamic code for life within the structure of society. Specifically, the economic and accounting systems practised in Saudi Arabia are derived from Islamic law (*shari'a*), i.e. from the Holy *Qur'an* and *Al-Sunna Al-Sharifa*.

Zakat is the third pillar of Islam and so its practice is required of all Muslims living in Saudi Arabia. In practice it is levied on Saudi nationals, both companies (wholly Saudi owned or on the Saudi share of corporate profits and properties of entities jointly owned with non-Muslims) and individuals. Zakat on the invested funds is due only after one full annual cycle of the investment, calculated from the date of inception of the company. It is imposed at a rate of 2.5% on income and property (including equity invested in operations) minus incomplete long-term contracts and net fixed assets that are not held for resale[86].

The system of Zakat and corporate tax which only applies to non-

[86] **See chapter four (section 4.3.1).**

Muslim-owned companies and entities jointly owned with non-Muslims, is promulgated through a series of Royal decrees, Ministerial decisions, and Department of Zakat and Income Tax (DZIT) circulars. According to the Royal Decree No. M/76 issued in 30/10/1396 A.H.(1976), half of the Zakat should be paid to the DZIT, and the other half is to be distributed directly by the Zakat payer to the poor. Saudi joint stock companies, however, must pay the full Zakat to the DZIT.

The Ministerial Decree No. 104 which was issued in 1408 A.H. (1988) required companies to charge Zakat to the profit and loss account as an expense rather than to the retained earnings account. Prior to that time, managers of Saudi companies could choose which of the two accounting treatments they wished to apply. The difference between these two treatments can be significant in financial terms and can be illustrated as follows. Assume that X company reported the following financial information for the 1415 (1995) fiscal year:

Share Capital	3,000,000
Statutory Reserve- Jan.,1	400,000
Retained Earnings- Jan.,1	700,000
Dividends (5% of Share Capital)	150,000
Net Sales during the period	500,000
Cost of Goods Sold	200,000
Expenses	100,000
Zakat	150,000

Table (6.2) shows below the profit and loss account, the shareholders' equity section and the accounting entries belonging to each method.

Table (6.2)

Effects of the distributing and expensing methods on income

Financial Information	Distributing Method	Expensing Method
Profit and Loss Account:		
Net Sales	500,000	500,000
Cost of Goods Sold	(200,000)	(200,000)
Gross Profit	300,000	300,000
Expenses	(100,000)	(100,000)
Zakat	--	(150,000)
Net Profit	200,000	50,000
Shareholders' equity section:		
Share Capital	3,000,000	3,000,000
Statutory Reserve- Dec.31	420,000	405,000
Retained Earnings- Dec.31	580,000	595,000
Total Shareholders' Equity	4,000,000	4,000,000

Entries:		
Profit & Loss Account Zakat	No Entry	Dr. 150,000 Cr. 150,000
Profit & Loss Account Retained Earnings Account	Dr. 200,000 Cr. 200,000	Dr. 50,000 Cr. 50,000
Retained Earnings Account Dividends Payable Statutory Reserve Account Zakat	Dr. 320,000 Cr. 150,000 Cr. 20,000* Cr. 150,000	Dr. 155,000 Cr. 150,000 Cr. 5,000* --
* (10% of Net Profit)	200,000 * 10% = 20,000	50,000 * 10% =5,000

We examined the 48 annual reports for the 1995 fiscal year and found that, contrary to the requirement of the Ministerial Decree No. 104., 16 companies still treated Zakat as income distributions rather than as an expense. This practice suggests again that the decision to expense Zakat would result in lower net profit, as indicated by Table (6.2), for most companies relative to the use of the distributing method. Hence, expensing the Zakat is treated as an income decreasing policy. The distributing method is, obviously, treated as an income increasing policy.

6.1.3 Independent Variables

The following explanatory variables[87] will be used to test the hypotheses developed in chapter five:

1. **Size**. Company size, which is used as a proxy for political visibility, is

[87] **Note that transformations of some of these variables may be used when it is appropriate.**

measured by total reported assets and derived from data in the 1995 companies' balance sheets.

2. **GDebt**. This explanatory variable is a dummy (0/1) variable and used as an indicator for the existence of Government debts and/or donations in companies' capital structures. It is derived from data in the 1995 companies' balance sheets and the notes to the companies' annual reports.

3. **Employee**. This independent variable, proposed as the third proxy for Saudi companies' political visibility, is measured by the ratio of foreign employees to total employees. Because Saudi companies do not report information about their employees, the ratio of foreign employees to total employees for each of the 48 companies in the final sample is obtained from the Saudi Security Organisation (SSO) as at December 31, 1995, and from the Saudi Share Registration Company Report for the year 1995.

4. **Bonus**. This is an indicator variable for the existence of a bonus plan and is represented by a dummy (0/1) variable. It is obtained from the notes to the Saudi companies' annual reports for the fiscal year 1995[88].

5. **Owner**. This variable is measured by the percentage of ownership by directors as a group. Saudi companies' annual reports do not contain

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[88] In few cases, this was not clear and a judgement was required to classify the company's compensation plan.

information about stock ownership. This information is, however, obtained from the Saudi Share Registration Company as at December 31, 1995. Information about the directors of companies is obtained from the Saudi Share Registration Company and the Chamber of Commerce and Industry Reports for the year 1995.

6.1.4 Summary

Based on the theoretical discussions cited above, Table (6.3) lists the dependent and independent variables of the study and summarises how they are measured.

Table (6.3)

Summary of Variables

Variables	Description	Expected Sign
Dependent Variables:		
(1). Inventory Method	is coded 1 if the company uses the FIFO method and coded 0 if the company uses the average or LIFO cost methods.	n/a
(2). R & D Method	is coded 1 if the company capitalises the expenditure of R&D, otherwise coded 0.	n/a
(3). Zakat Method	is coded 1 if the company's Zakat expenditure is treated as income distributions, otherwise coded 0.	n/a
Independent Variables:		
Political Visibility:		

(1). Size	is measured by total assets.	-ve
(2). GDebt	is an indicator variable for the existence of a Government debt and/or donations and represented by a dummy (0/1) variable.	-ve
(3). Employee	is the ratio of foreign employees to total employees.	-ve
Compensation Plans:		
(4). Bonus	is an indicator variable for the existence of a bonus plan and represented by a dummy (0/1) variable.	+ve
(5). Owner	is the percentage of ownership by directors as a group.	-ve

6.2 METHODOLOGY

This study will be conducted in two phases involving two kinds of tests. These two phases are: (1) Univariate tests, and (2) Multivariate tests.

6.2.1 Univariate Tests

Four types of univariate tests will be performed: (1) *t* tests, (2) Mann-Whitney *U* tests, (3) Median tests, and (4) Chi-square tests. The first three univariate tests will be used to assess the relationship between the continuous independent variables (**Size, Employee,** and **Owner**) and the methods used to account for inventory, R&D, and Zakat. The Chi-square tests will be used for examining the effects of the dichotomous **GDebt** and

Bonus variables on the three accounting policies. These four univariate tests are very useful for this study because "they prevent measurement errors in one independent variable from affecting test results on another" (Chow, 1982, p. 280).

6.2.1.1 *t* tests

The most appropriate univariate test for our study is the *t* test for unrelated or independent samples. This test can be used to determine whether there is a significant difference between the means of two independent populations. Basically, the *t* test is based on drawing two independent random samples from different populations and comparing the means of the two samples with the standard error of the difference in the means. The box below summarises the assumptions and the appropriate hypothesis underlying the *t* test:

Tests of the Difference between the Means of two Independent Samples

(i) Data:

X and Y are two samples with $\overline{X}$ and $\overline{Y}$ means and of n and m observations from distributions with means μ_X and μ_Y, respectively.

(ii) Assumptions:

(1). The X and Y samples are random samples from their respective populations.

(2). The X and Y respective populations have a normal distribution.

(3). There is mutual independence between the X and Y samples.

(4). The variances of the X and Y samples are equal.

(iii) Hypotheses:

(A). *Upper-tailed test*

$$H_0 : \mu_X - \mu_Y = D_0$$

$$H_1 : \mu_X - \mu_Y > D_0$$

The Decision rule is

Reject H_0 if

$$t = \frac{(\bar{X} - \bar{Y}) - D_O}{\sqrt{\{\frac{[S_X^2 \times (n-1)] + [S_Y^2 \times (m-1)]}{n+m-2}\} \times (\frac{1}{n} + \frac{1}{m})}} \succ t_{n+m-2,\alpha}$$

(B). *Lower-tailed test*

$$H_0 : \mu_X - \mu_Y = D_0$$

$$H_1 : \mu_X - \mu_Y < D_0$$

The Decision rule is

Reject H_0 if

$$t = \frac{(\bar{X} - \bar{Y}) - D_O}{\sqrt{\{\frac{[S_X^2 \times (n-1)] + [S_Y^2 \times (m-1)]}{n+m-2}\} \times (\frac{1}{n} + \frac{1}{m})}} \prec -t_{n+m-2,\alpha}$$

Where

$t_{n+m-2,\alpha}$ is the number for which $P(t_{n+m-2} > t_{n+m-2,\alpha}) = \alpha$, and t_{n+m-2} has a Student's t distribution with $(n + m - 2)$ degrees of freedom. D_0 is any specified value.

6.2.1.2 Mann-Whitney *U* test

The natural non-parametric procedure to compare with the *t* test is the Mann-Whitney *U* test. The *U* test, like the *t* test, is based on drawing two independent random samples from different populations. However, instead of testing for the difference between the means of the two populations, the *U* test determines whether the two populations are identical. On theoretical grounds, the *U* test may be considered a safer test to use and preferable to the *t* test because it makes no assumptions about the population distributions (namely, that both populations are normally distributed and that the variances of the two populations are equal). The only requirement of this test is that the measurement scale for the data generated by the two independent random samples be at least ordinal. Another advantage of the Mann-Whitney *U* test is that its power is not much below the *t* test when the normal distribution assumption is satisfied (Conover, 1980, pp. 215-216).

Our null hypothesis for the *U* test is that the two independent samples come from identical populations. As a first step in testing this null hypothesis, the two samples are pooled and the observations are ranked in ascending order. Ranks for tied observations are averaged, and the mean rank is then assigned to each of the tied observations. Now, if the null hypothesis were not true, we would expect the sum of the ranks assigned to

the values of the first sample to be quite different from the sum of the ranks assigned to the values of the second sample. This implies that our decision is based on the ranks assigned to the values of the two samples. Specifically, the decision is based on the value of U shown in the following box:

The Mann-Whitney U Statistic

$$U = n_1 n_2 \frac{n_1(n_1+1)}{2} - R_1$$

where

n_1 = Number of observations in sample 1.

n_2 = Number of observations in sample 2.

R_1= Rank sum assigned to the first sample[89].

Furthermore, when the population distributions are identical, it can be shown that the U statistic has expected value

$$E(U) = \frac{n_1 n_2}{2},$$

and variance

$$Var\,(U) = \frac{n_1 n_2 (n_1+n_2+1)}{12},$$

[89] Note that R_1 is the rank sum for the smaller sample which we call it the "first".

and the distribution of

$$Z = \frac{U - E(U)}{\sqrt{Var(U)}}$$

tends to normality with zero mean and unit variance as n_1 and n_2 become large[90]. Hence, this allows tests to be carried out using the standard normal distribution, as described in the box below:

(a) The Mann-Whitney *U* Statistic:

$$U = n_1 n_2 \frac{n_1(n_1+1)}{2} - R_1$$

(ii) Hypotheses:

(A). One-*tailed test*

$$H_0 : \mu_1 = \mu_2$$
$$H_1 : \mu_1 \succ \mu_2$$

The Decision rule is

Reject H_0 if

$$Z = \frac{U - (\frac{n_1 n_2}{2})}{\sqrt{\frac{n_1 n_2 (n_1+n_2+1)}{12}}} \leq - Z_\alpha$$

(B). One-*tailed test*

[90] **The approximation is adequate when n_1 and n_2 are both greater than or equal to 10.**

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \mu_1 \prec \mu_2$$

The Decision rule is

Reject H_0 if

$$Z = \frac{U - (\frac{n_1 n_2}{2})}{\sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}}} \geq Z_\alpha$$

6.2.1.3 Median tests

The median test is another non-parametric test which can be applied to the data of the present study. By means of a r*c contingency table one may use the Chi-square test to examine whether there is a significant difference between the medians of two independent samples drawn from different populations.

To perform the median test, one must make sure that the samples are random samples and are independent of each other. A 2*2 contingency table is then constructed as follows:

Sample	1	2	Total
> Median	n_{11}	m_{12}	T_1
≤ Median	n_{21}	m_{22}	T_2
Total	n	m	N

Where n and m are the number of observations in samples 1 and 2, respectively; $N = n + m$, i.e. the total observations in both samples combined; n_{11} is the number of observations in sample 1 that exceed the global median; n_{21} is the number of observations in sample 1 that are less than or equal to the global median; m_{12} is the number of observations in sample 2 that are above the global median; m_{22} is the number of observations in sample 2 that are less than or equal to the global median; T_1 is the total number of observations above the global median in both samples; T_2 is the total number of observations below or equal to the global median in the two samples and $T_1 + T_2 = N$.

The Chi-square test is then applied to the above contingency table. If

$$\frac{N^2}{T_1 \times T_2} \times \{\frac{(n_{11} - \frac{n \times T_1}{N})^2}{n} + \frac{(m_{12} - \frac{m \times T_1}{N})^2}{m}\} \succ \chi^2$$

with 1 degree of freedom, then the null hypothesis that the two populations from which samples 1 and 2 are drawn have the same median would be rejected in favour of the alternative hypothesis that the two populations have different medians.

6.2.1.4 Chi-square tests

Another useful application of the Chi-square test is to examine the issue of independence or dependence between two qualitative variables.

Such a test is basically based on drawing a sample, each of whose observations can be cross-classified, according to a pair of attributes, in an r*c contingency table. For example, consider Table (6.4) which is a general form of a two-way contingency table containing *r* rows and *c* columns. Note that the observed frequency in the (*ij*) cell is denoted by n_{ij}, the *i*th row total is r_i, the *j*th column total is c_j, and the total sample size is *n*.

Table (6.4)

General r*c contingency table

		Column				
		1	2	. . .	c	Row Totals
	1	n_{11}	n_{12}	. . .	n_{1c}	r_1
	2	n_{21}	n_{22}	. . .	n_{1c}	r_2
Row	.	.	.	. . .	.	.
	.	.	.	. . .	.	.
	.	.	.	. . .	.	.
	r	n_{r1}	n_{r2}	. . .	n_{rc}	r_r
	Column Totals	c_1	c_2	. . .	c_c	*n*

Using this notation, the box below summarises the assumptions and the appropriate hypothesis underlying the X^2 test:

A Test for Independence

(i) Hypotheses:

H_0 : The two classifications are independent.
H_1 : The two classifications are dependent.

The Decision rule

Reject H_0 if

$$X^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{[n_{ij} - \hat{E}(n_{ij})]^2}{\hat{E}(n_{ij})} \succ X^2_{\alpha}$$

(ii) Assumptions:

(1). The n observed values are a random sample from the population of interest.

(2). The sample size, n, is sufficiently large so that , for every cell, $\hat{E}(n_{ij})$ will be equal to 5 or more.

Where $\hat{E}(n_{ij}) = \frac{r_i c_j}{n}$, and X^2 has $(r - 1)(c - 1)$ degree of freedom.

6.2.2 Multivariate Tests

Three multivariate estimation techniques will be employed; ordinary least squares (OLS), probit, and logit. These multivariate models are desirable for this study because they allow us to simultaneously test the significance of the five independent variables and to verify the results of the univariate tests.

6.2.2.1 OLS, Probit and Logit Models

In section 6.1.2 we discussed three accounting policy choices and their effect on net income. We assumed that a company chooses a specific

policy over another to either increase or decrease its income. Although each policy choice has a specific monetary effect on net income for each company, only the increasing/decreasing effect is, in fact, observed. Hence, if we denote the increasing effect by one and the decreasing effect by zero, we will have a Linear Probability Model (LPM) which may be written, in the general form, as follows:

$$Y_i = \sum_{k=1}^{K} \beta_k X_{ik} + \varepsilon_i \qquad (1)$$

where Y is a dichotomous variable, taking a 1 or 0 value, X_k for $k = 1, 2, \ldots, K$ are the independent variables, ε is the disturbance term, β_k are unknown parameters, the subscript i refers to the i^{th} observation from the sample of size N, and

$$0 \le \sum_{k=1}^{K} \beta_k X_{ik} \le 1 \quad \text{or} \quad 0 \le E(Y_i) \le 1$$

since

$$E(Y_i) = 0 \times \mathrm{P}(Y_i = 0) + 1 \times \mathrm{P}(Y_i = 1)$$

$$= \mathrm{P}(Y_i = 1) = \sum_{k=1}^{K} \beta_k X_{\mathrm{ik}}$$

The unknown parameters, β_k, of this LPM model can then be estimated using the Ordinary Least Squares (OLS) technique. In general, a

powerful justification for the use of the OLS estimation procedure exists when the following key assumptions are met:

(1).The disturbance terms, ε_i, are random variables with mean 0, that is

$$E(\varepsilon_i) = 0 \qquad (i = 1, 2, \ldots, N)$$

(2). The disturbance terms, ε_i, are all have a constant variance, say σ_ε^2, so that

$$E(\varepsilon_i^2) = \sigma_\varepsilon^2 \qquad (i = 1, 2, \ldots, N)$$

(3). The disturbance terms, ε_i, are not correlated with one another, so that

$$E(\varepsilon_i, \varepsilon_j) = 0 \qquad \text{for all } i \neq j$$

(4). Each independent variable is uncorrelated with the disturbance term, that is

$$\text{COV}(X_{ik}, \varepsilon_i) = 0 \qquad (i = 1, 2, \ldots, N \text{ and } k=1,2,\ldots, K)$$

(5). The disturbance terms, ε_i, are normally distributed.

(6). There is no exact linear relationship between two or more independent variables (i.e. there is no perfect multicollinearity).

However, although the OLS technique may give a reasonable fit to our data base, it has three major problems. The first is that the assumption that the disturbance terms, ε_i, have a constant variance cannot be maintained. This can be demonstrated as follows. Since Y_i takes on only

two values, either 1 or 0, the disturbance term, ε_i, also can take on only two values;

$$-\sum_{k=1}^{K}\beta_k X_{ik} \qquad \text{when } Y_i = 0, \text{ and}$$

$$1-\sum_{k=1}^{K}\beta_k X_{ik} \qquad \text{when } Y_i = 1$$

Now, using the above results and assuming that $E(\varepsilon_i) = 0$ we then get:

$$\text{var}(\varepsilon_i) = E[\varepsilon_i - E(\varepsilon_i)]^2 = E(\varepsilon_i^2)$$

$$= P(Y_i = 1) \times [1 - \sum_{k=1}^{K}\beta_k X_{ik}]^2 + P(Y_i = 0) \times [-\sum_{k=1}^{K}\beta_k X_{ik}]^2$$

$$= P(Y_i = 1) \times [1 - P(Y_i = 1)]^2 + [1 - P(Y_i = 1) \times [P(Y_i = 1)]^2$$

$$= P(Y_i = 1) \times [1 - P(Y_i = 1)]$$

$$= [\sum_{k=1}^{K}\beta_k X_{ik}] \times [1 - \sum_{k=1}^{K}\beta_k X_{ik}]$$

This result implies that the variance of the disturbance term, ε_i, is heteroskedastic because it varies systematically with the values of the independent variables. As a result, the OLS estimates, $\hat{b}_k$, will not be efficient, i.e. they will not have the smallest possible variance. Furthermore, the usual tests of significance will be potentially invalid. However, the econometric literature provides two approaches to overcome this problem.

The first is by estimating equation (1) with Goldberger (1964)'s Weighted Least Squares (WLS) procedure rather than OLS method. This procedure is based on the fact that although the OLS estimators of the Linear Probability Model (LPM) will be inefficient, they will still be unbiased since the expectation of the disturbance term will be equal to zero, that is

$$E(\varepsilon_i) = \mathrm{P}(\mathrm{Y_i} = 1) \times [1 - \sum_{k=1}^{K} \beta_k X_{ik}] + \mathrm{P}(\mathrm{Y_i} = 0) \times [-\sum_{k=1}^{K} \beta_k X_{ik}]$$

$$= \mathrm{P}(\mathrm{Y_i} = 1) \times [1 - \mathrm{P}(\mathrm{Y_i} = 1)] - [1 - \mathrm{P}(\mathrm{Y_i} = 1) \times [\mathrm{P}(\mathrm{Y_i} = 1)] = 0$$

The Goldberger (1964)'s Weighted Least Squares (WLS) procedure can be summarised as follows:

Step 1. We run the usual OLS regression on equation (1) and obtain the estimate of Y_i, say $\hat{Y}_i$. From these estimates, we calculate $\hat{w}_i = \hat{Y}_i(1 - \hat{Y}_i)$, the estimates of unknown weights, w_i.

Step 2. We then divide both sides of equation (1) by $\sqrt{\hat{w}_i}$ and run OLS regression as follows:

$$\frac{Y_i}{\sqrt{\hat{w}_i}} = \sum_{k=1}^{K} \beta_k \frac{X_{ik}}{\sqrt{\hat{w}_i}} + \frac{\varepsilon_i}{\sqrt{\hat{w}_i}}$$

This two-step correction for the presence of heteroskedasticity will yield new estimates, $\tilde{b}_k$, which will not only be unbiased but also efficient, and

the usual tests of statistical inference can be applied in an asymptotic sense. Another way of correcting the OLS estimates for heteroskedasticity is White (1980)'s heteroskedasticity-consistent covariance matrix estimation procedure which, unlike Goldberger (1964)'s WLS approach, does not require knowledge of the form of heteroscedasticity (σ_i^2)[91].

The second major problem with using OLS estimation procedure on dichotomous variables is that the assumption of normality for the disturbance term, ε_i, is not tenable. This can be demonstrated in a straightforward manner. Since the ε_i, like Y_i, takes on only two values, that is

$$-\sum_{k=1}^{K}\beta_k X_{ik} \qquad \text{when } Y_i = 0, \text{ and}$$

$$1-\sum_{k=1}^{K}\beta_k' X_{ik} \qquad \text{when } Y_i = 1$$

then it follows that it has a binomial distribution. However, violation of the normality assumption may not be as critical as it appears since the OLS parameters still remain unbiased. Furthermore, as the sample size increases, it can be shown that the OLS estimators tend to be approximately normally

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[91] Since several computer econometric software packages (e.g. SHAZAM, TSP, SAS) automatically correct for heteroskedasticity using White's correction approach, the mathematical details of White's procedures are not discussed here.

distributed (Malinvauld, 1966, pp. 195-197), so that hypothesis tests can be conducted in the usual manner- on "large" samples, at least.

The third major problem is that since the unconstrained $\sum_{k=1}^{K} \beta_k X_{ik}$ is used to approximate a probability number, $P_i = E(Y_i = 1 / X_{ik})$, which must necessarily range from 0 to 1, it is expected that with extreme values of $\sum_{k=1}^{K} \beta_k X_{ik}$ neither the OLS technique nor the WLS procedure would guarantee that $\hat{Y}_i$, the estimators of $E(Y_i)$, will lie between 0 and 1. However, there are two ways of correcting this problem. The first is that by resorting to computer econometric software packages we can estimate the linear probability equation (1) by the usual OLS estimation method and find out whether the estimated $\hat{Y}_i$ lie in the 0-1 interval. If some are greater than 1, $\hat{Y}_i$ is assumed to be one for those cases; if they are less than 0, they are assumed to be zero. The more common and more sensible procedure, however, is to use an estimating technique that helps to satisfy the 0-1 constraint on P_i. Probit and logit models both guarantee that the estimated probabilities will lie between zero and one. Both these models are now sketched below.

In our empirical work Y_i is a dichotomous variable taking a 1 or 0 value, and so we model the probabilities, P_i, by the cumulative logistic distribution function which may be formulated as:

$$P_i = E(Y = 1 / X_{ik}) = \frac{e^{\sum_{k=1}^{K} \beta_k X_{ik}}}{1 + e^{\sum_{k=1}^{K} \beta_k X_{ik}}} = \frac{1}{1 + e^{-\sum_{k=1}^{K} \beta_k X_{ik}}}$$

or for ease of exposition,

$$P_i = \frac{1}{1 + \exp(-Z_i)}$$

where $Z_i = \sum_{k=1}^{K} \beta_k X_{ik}$.. Clearly, P_i is now continuous and can take on any value between 1 and 0. Specifically, as Z_i (i.e. X_{ik}) increases from -∞ to +∞, P_i increases from 0 to 1 but never falls outside the 0-1 interval. Furthermore, P_i, unlike the LPM, is nonlinearly related to Z_i and thus it is expected to approach zero at slower and slower rates as X_{ik} becomes smaller and to approach one at slower and slower rates as X_{ik} becomes very large. However, this creates an estimation problem since P_i is nonlinear not only in X_{ik} but also in the parameters, β_k. But since P_i, the probability that the i^{th} company uses an income increasing policy, is given as:

$$P_i = \frac{1}{1+\exp(-Z_i)}$$

then $(1-P_i)$, the probability that the i^{th} company uses an income decreasing policy, is:

$$1-P_i = 1-\frac{1}{1+\exp(-Z_i)}$$

$$= \frac{1+\exp(-Z_i)-1}{1+\exp(-Z_i)}$$

$$= \frac{\exp(-Z_i)}{1+\exp(-Z_i)}$$

$$= \frac{1}{1+\exp(Z_i)},$$

and the odds ratio $(P_i/\ 1-P_i)$ is:

$$\frac{P_i}{1-P_i} = \exp(Z_i),$$

taking the natural log we then obtain:

$$ln(\frac{P_i}{1-P_i}) = Z_i = \sum_{k=1}^{K} \beta_k X_{ik}$$

Thus, the logarithm of the odds ratio $(P_i/\ 1-P_i)$ is an exact linear function of X_{ik} and the parameters, β_k. Specifically, it is easy to verify that as P_i goes from 0 to 1 (i.e. as Z_i varies from -∞ to +∞) the log of the odds ratio goes from -∞ to +∞ and although the log of the odds ratio is linear in X_{ik},

the probabilities themselves are not. Hence, these characteristics motivate use of the logit model as a seemingly logical alternative to the Linear Probability Model (LPM) for dichotomous dependent variables.

An alternative to the cumulative logistic function is to model the probabilities, P_i, by the cumulative normal distribution function. The estimating model that emerges from this normal distribution approach is popularly known as the probit model which is commonly formulated as:

$$P(Y=1) = \int_{-\infty}^{\sum_{k=1}^{K}\beta_k X_{ik}} \frac{1}{\sqrt{2\pi}} \exp(-\varepsilon^2/2)\, d\varepsilon = \Phi(\sum_{k=1}^{K}\beta_k X_{ik})$$

where $\Phi(.)$ is used to denote the standard normal distribution. Obviously, the model alleviates the problem of a dichotomous dependent variable, i.e. it is transformed in such a way that it has an underlying continuous distribution, and satisfies the constraints

$$\lim_{\sum_{k=1}^{K}\beta_k X_{ik}\to+\infty} \Phi(\sum_{k=1}^{K}\beta_k X_{ik}) = P(Y=1) = 1,$$

$$\lim_{\sum_{k=1}^{K}\beta_k X_{ik}\to-\infty} \Phi(\sum_{k=1}^{K}\beta_k X_{ik}) = P(Y=1) = 0$$

On theoretical grounds, the probit model is similar to the logit model and both tend to give similar results. In practice, both models use the

Maximum Likelihood Estimation technique to develop asymptotically efficient estimates of coefficients and standard errors, and, hence, asymptotic *t* tests can be applied to assess statistical significance of the important parameters.

6.2.2.2 Trade-offs in the choice among the three multivariate analyses

The violation of the assumptions underling OLS regression significance tests and the sensitivity of OLS parameter estimates to the range of the data sampled[92] have led to recommendations that logit or probit estimation procedures rather than the OLS technique be used when the dependent variable is dichotomous and the sample size is large. However, despite the theoretical limitations of OLS, logit and probit may not be practical alternatives when the sample size is small, as in our study. McFadden (1984, pp. 1441-42) suggests that "sample sizes which yield less than thirty responses per alternative, produced estimators which cannot be analysed reliably by asymptotic methods".

In fact, the choice between logit and probit or OLS is not as clear when the sample size is small. The statistics and accounting literature suggest that the choice among the three models should be based upon the

[92] See section 6.2.2.1.

overall sample size, the number of predictor variables, and the degree of their covariation and skewness. Aldrich and Nelson (1984, p. 81) suggest that the choice among the three techniques for small samples "depends upon the number of variables, the degree of their covariation, and so forth,...". Two Monte Carlo studies have provided empirical insights on assessing the effect of these factors. Stone and Rasp (1991) used three continuous independent variables and one dummy variable for investigating how large the sample size must be for using logit when response group sizes are disparate and data are skewed and collinear. They found that a sample size of 200 observations or more is the minimum required for satisfying the asymptotic properties of the logit model. They conclude that

> **... when sample sizes are smaller, logit test statistics will be modestly miscalibrated. However, much of the miscalibration actually will be attributable to skewness rather than to small sample size...using OLS rather than logit for sample sizes of 100 or less will result in test statistics that are somewhat better calibrated. However, the empirical error rates for these statistics also will differ from nominal rates when data are skewed and response group sizes disparate. The cost of using OLS will be parameter estimates that are sensitive to the range of observations sampled and reliance on a model with a fundamental form that may not reliably represent accounting choice** (Stone and Rasp, 1991, p. 184).

Noreen (1988) also reports, for a simulation study, that the overall sample sizes should be "large enough" to make use of the asymptotic properties of probit. He used three accounting independent variables similar

to those used in many accounting choice studies[93], one dummy variable and a dichotomous dependent variable generated with the probit model using the four explanatory variables. He concludes for sample sizes of 50 and 100 that

> **... when the null hypothesis is true, the empirical distributions of the OLS regression test statistics conform quite closely to their theoretical distributions in the tails, which cannot be claimed for the probit test statistics. When the alternative hypothesis is true, OLS regression appears to be as powerful as probit** (Noreen, 1988, p. 132).

In general, these two simulation studies demonstrate empirically that OLS regression is superior to the logit and probit estimation procedures in research involving small sample sizes. But the OLS model is a specification that preserves linearity while one knows in advance that the imposition of its assumptions cannot be maintained. Aldrich and Nelson (1984) note the following basic conclusion concerning whether one should use OLS, logit or probit:

> **First, all the three techniques yield estimations that have quite similar properties (e.g. asymptotically unbiased, efficient and normal), so that there is little to gain from one technique over another in terms of inferences that can be made... [But] the linearity assumption may be the key to that choice** (Aldrich and Nelson, 1984, p. 80).

In short, the only real conclusion we reach from the above discussion is that there is no important practical reason to choose one model over

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[93] Net sales, current ratio and leverage. For a more detailed description, see Noreen (1988, p.122).

another since the "true" relationship between Y_i and X_{ik} is not known and our research involves the relatively small sample size of 48 observations.

6.2.3 Summary

This study will use the *t* tests, Mann-Whitney *U* tests, and Median tests to examine the relationship between the continuous independent variables (**Size, Employee,** and **Owner**) and the methods used to account for inventory, R&D and Zakat. The Chi-square test will be used for assessing the effects of the dichotomous **GDebt** and **Bonus** variables on the three accounting policies.

Because we think that using only one of three multivariate estimation procedures (OLS, probit, and logit analyses) would be unjustified, given the small sample size involved in our study and the probability of mis-specifying the relationship between Y_i and X_{ik}, all three procedures will be employed in the present study to simultaneously test the combined predictive power of the five independent variables and to verify the results of the univariate tests.

CHAPTER SEVEN:

EMPIRICAL RESULTS AND INTERPRETATION

7.0 INTRODUCTION

In this chapter we empirically examine the ability of five political and contracting cost variables to explain and predict why managers of Saudi companies prefer some accounting policies over others. These political and contracting cost variables (the independent variables) include: (1) total assets, (2) the presence of Government debt and/or donations in a company's capital structure, (3) ratios of foreign employees to total employees, (4) the existence of management compensation plans tied to reported profits, and (5) insider ownership. The research findings are presented in five sections. Section 7.1 provides summary statistics for and the correlation matrix of the five political and contracting cost variables for the entire sample. In Section 7.2, univariate and multivariate tests are used to predict the choice of inventory methods as a function of the five independent variables. The same tests are then applied to predict the choice of research and development (section 7.3), and Zakat (section 7.4) procedures. Finally, section 7.5 provides a summary and discussion of the study's overall results.

7.1 DESCRIPTIVE STATISTICS

The sample used in our empirical analysis consists of 48 companies listed on the Saudi stock market as of December 31, 1995. The variables

Size, GDebt, Employee, Bonus, and **Owner** which were previously defined in Table (6.3) are computed for each firm. Table (7.1) provides summary statistics for these five independent variables. Note that the descriptive statistics for the **Size** and **Employee** variables were found to be considerably skewed; to the point of causing problems in applying some of the univariate and multivariate tests. The logarithm to the base 10 is therefore applied to the **Size** and **Employee** variables. This transformation is used throughout our analysis.

Table (7.1)

Summary statistics of explanatory variables

Description	N	Mean	ST. Deviation	Median	Minimum	Maximum
Size	48	8.7802	0.6163	8.8545	7.2493	10.789
GDebt	48	0.4583	0.5035	-	0.0000	1.0000
Employee	48	-0.2989	0.2677	-0.2255	-1.0458	0.0000
Bonus	48	0.5625	0.5013	-	0.0000	1.0000
Owner	48	0.1814	0.2841	0.0545	0.0017	0.9526

In order for univariate and multivariate tests to yield meaningful results, one has to make sure that the independent variables are not substantially correlated to the extent of causing high multicollinearity among

the variables. Because of the potential adverse effects of this problem, two tests are performed to determine whether high multicollinearity might exist. A preliminary analysis is first performed by examining the pairwise Pearson correlation among the independent variables presented in Table (7.2).

Table (7.2)

Correlation matrix of variables (n=48)

Variables	Size	GDebt	Employee	Bonus	Owner
Size	1.0000	-	-	-	-
GDebt	0.1491	1.0000	-	-	-
Employee	0.3445*	0.1064	1.0000	-	-
Bonus	0.3907*	0.1370	0.0278	1.0000	-
Owner	-0.0695	0.1765	0.1598	0.1505	1.0000
R^2	0.3062	0.0608	0.1773	0.2099	0.1159

* Significant at .01, two-tail test.

Table (7.2) indicates that two of the reported correlations are statistically significant. However, the highest Pearson correlation among the variables is about 0.39 which is less than the critical value of 0.8 suggested by Gujarati (1995, p. 335) above which "multicollinearity [becomes] a serious problem". This preliminary analysis is, however, not conclusive because the simple correlation matrix does not take into account the possible

correlation between any one independent variable with all the other variables as a group. Therefore, it may be more appropriate to regress each independent variable on the remaining independent variables and "to note whether any of the resultant R^2 values is near 1" (Kohler, 1985, p. 629). If we follow this procedure and examine the R^2 values obtained from the auxiliary regressions and reported below the correlation matrix in Table (7.2), we find that the largest R^2 value is about 0.30, suggesting that, in general, the results of this study do not appear to be indicative of high multicollinearity. Furthermore, since high multicollinearity would cause the results of the univariate and multivariate tests to diverge, three multivariate techniques are used to confirm the findings obtained from the univariate tests.

7.2 INVENTORY METHODS

We have examined the notes to the 48 annual reports for the fiscal year 1995 and found that 15 companies used the FIFO method and 32 companies used the average/LIFO cost method to account for inventory. Note that one company is dropped from the sample because it operates

mainly in the security investment industry and hence did not hold significant inventories[94].

7.2.1 Univariate Tests

Three univariate tests (*t* tests, Mann-Whitney *U* tests, and Median tests) are performed to examine the relationship between the continuous independent variables (**Size, Employee,** and **Owner**) and the methods used to account for inventory. The Chi-square test is used for assessing the effects of the dichotomous **GDebt** and **Bonus** variables on the accounting policy for inventory.

Table (7.3)

Results of t-tests on the independent variables

Hypothesis & Variable *	Predicted Result	(1) Average or LIFO Mean (ST. Deviation) n= 32	(2) FIFO Mean (ST. Deviation) n= 15	*t*-test** *t*	*p*
H1. Size	1 > 2	8.854 (0.64)	8.671 (0.55)	0.95	0.20
H3. Employee	1 > 2	-0.183 (0.19)	-0.545 (0.26)	4.87	0.000
H5. Owner	1 > 2	0.231 (0.31)	0.003 (0.03)	3.63	0.000

* For a description of the variables, see Table (6.3).

** The *t*-statistics shown are for the differences in means between the two groups. The *p*-values shown are for one-tailed test versus the null hypothesis

[94]**Multicollinearity was tested for this 47 firm sample and the pairwise Pearson correlations yielded similar results to those reported in Table (7.2); hence, they are not reported here.**

Table (7.3) reports the results of *t*-tests of differences in means for the independent variables of interest. It indicates that the differences in the means between companies using FIFO and average/LIFO methods are in the hypothesised direction. The *t*-statistics for the **Employee** (H3) and **Owner** (H5) variables are statistically significant beyond the one percent level, while the *t*-statistic for the **Size** (H1) variable is not significant at conventional levels.

Table (7.4)

Results of Mann-Whitney U tests on the independent variables

Hypothesis. & Variable *	Predicted Result	(1) Average or LIFO Mean Rank n= 32	(2) FIFO Mean Rank n= 15	*U*-test *Z Score*	*p***
H1. Size	1 > 2	24.84	22.20	-0.616	0.30
H3. Employee	1 > 2	29.81	11.60	-4.246	0.000
H5. Owner	1 > 2	27.69	16.13	-2.693	0.005

* For a description of the variables, see Table (6.3).
** The *p*-values shown are for one-tailed test versus the null hypothesis.

The *t*-test is based on the assumption of asymptotic normality. However, an equivalent test which avoids the normality assumption is the non-parametric Mann-Whitney *U* test . This test is conducted to determine if companies using FIFO and average/LIFO methods are drawn from the same population. The results are shown in Table (7.4). Inspection of the Mann-

Whitney *U* test results shows that the **Employee** (H3) and **Owner** (H5) variables have the hypothesised signs and are significant at the one percent level or better. However, whilst the **Size** (H1) variable has the hypothesised direction, it is insignificant. These results are consistent with the findings of the *t*-test recorded in Table (7.3).

Table (7.5)

Results of median tests on the independent variables

		Accounting Methods		
		Average/LIFO	**FIFO**	**Total**
Size	< Grand Median	18	5	23
	≥ Grand Median	14	10	24
		32	15	47
Chi-square =2.15				
Employee	< Grand Median	20	3	23
	≥ Grand Median	12	12	24
		32	15	47
Chi-square =7.38*				
Owner	< Grand Median	20	3	23
	≥ Grand Median	12	12	24
		32	15	47
Chi-square =7.38*				

* Significant at .01, one-tail test.

Tables (7.3 and 7.4) seem to indicate that the results of the *t*-test and Mann-Whitney *U* test of the **Size** hypothesis are less consistent than are tests of the **Employee** and **Owner** hypotheses. The non-parametric median

test lends support to this conclusion, as can be seen from Table (7.5). The X^2 statistic for a test of differences in medians between the two groups of companies is 7.38 for the **Employee** (H3) and **Owner** (H5) variables, which is significant beyond the one percent level. The **Size** (H1) variable, however, has an insignificant X^2 statistic.

Table (7.6)

Contingency table relating methods of accounting for inventory to the presence of Government debt and/or donations and a bonus plan.

		Accounting Methods		
		Average/LIFO	**FIFO**	**Total**
GDebt	YES	16	6	22
	NO	16	9	25
		32	15	47
Chi-square =0.770				
Bonus	YES	17	9	26
	NO	15	6	21
		32	15	47
Chi-square =0.195				

Since the **GDebt** (H2) and **Bonus** (H4) variables are not continuous the Chi-square test is used to examine the relationship between the presence of Government debt and/or donations and management compensation plans tied to reported earnings and the choice of inventory method. The results are shown in Table (7.6). The X^2 statistics for the **GDebt** (H2) and **Bonus**

(H_4) variables are 0.77 and 0.195, respectively, which are statistically insignificant using a one-tailed test and a 10 percent significance level.

7.2.2 Multivariate Tests

To simultaneously test the combined predictive power of the five independent variables, three multivariate models are employed; OLS, probit, and logit. These three multivariate techniques have been frequently used in the accounting choice literature and serve as a check on the results of the univariate tests.

The individual effect of each independent variable is examined by including them all in the following cross-sectional regression:

$$\mathbf{Y}_i = \alpha + \beta_1 \mathbf{Size}_i + \beta_2 \mathbf{GDebt}_i + \beta_3 \mathbf{Employee}_i + \beta_4 \mathbf{Bonus}_i + \beta_5 \mathbf{Owner}_i,$$

where $Y_i = 1$ if the i^{th} company used the FIFO method, and 0 if the i^{th} company used the average or LIFO method. The **Size, GDebt, Employee, Bonus**, and **Owner** variables are as previously defined in Table (6.3). The predicted signs are negative for β_1 , β_2, β_3, and β_5 and positive for β_4. Table (7.7) presents the results of the OLS and probit[95] estimation techniques.

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[95] The logit model yielded similar results to those based on the probit estimation procedure and hence results relating to it, are not reported here.

Table (7.7)

OLS and probit analyses of the relation between the five political and contracting cost variables, and the accounting inventory policies.

Technique	Explanatory variables Coefficients (*t*-statistics) *p*-values*							
	Size -	**GDebt** -	**Employee** -	**Bonus** +	**Owner** -	**Constant**	R^2 ($\bar{R}^2$)	X^2 (F)
OLS**	0.172 (0.25)	0.135 (0.13)	-1.043 (-4.42) 0.000	0.932 (0.83)	-0.455 (-2.01) 0.05	-0.126 (-0.21)	(0.41)	(7.30) 0.000
PROBIT								
Model (1)	0.794 (0.88)	-0.791 (-1.19)	-7.125 (-2.76) 0.005	0.114 (0.15)	-9.517 (-2.55) 0.01	-8.789 (-1.07)	0.74	35.11 0.001
Model (2)	0.285 (0.71)	-0.066 (-0.15)			-8.743 (-1.99) 0.05	-6.677 (-0.77)	0.34	12.92 0.01

* The p-values shown are for one-tailed test versus the null hypothesis.

** The variance of the disturbance terms produced by the OLS technique is found to be heteroskedastic. As already discussed in chapter six (section 6.2.2.1), this problem can be corrected either by White's (1980) correction procedures, or by estimating our cross-sectional equation with Weighted Least Squares (WLS) rather than OLS. The econometric software package used in this study, SHAZAM, automatically corrects for this problem using White's correction procedures.

We first deal with the OLS technique results. Note that the results of the OLS estimation procedure appear to be less consistent with the findings of the univariate tests than are the results of the probit technique. However, there is one major problem preventing us from relying on the results of the OLS estimation procedure. We investigated the estimators of $E(Y_i)$, $\hat{Y}_i$, and found that seven estimated values are less than 0 (negative) and five values

are in excess of one, demonstrating that the OLS estimation model does not fulfil the 0-1 restriction. Because of this problem, the use of the *t*-statistics provided by the OLS procedure may be questionable. Therefore, one would be wise to be cautious of the OLS technique results and concentrate on the findings of the probit model[96].

The standard Goodness of fit test using the likelihood ratio statistic[97] shows that the probit model (1) is significant with X^2 of 35.11, implying that the null hypothesis of no statistical relation between the independent and dependent variables is rejected at the 0.001 level. The model (1)'s explanatory power, which is measured by the likelihood ratio index (R^2)[98], is 74%. Consistent with the results of the univariate tests, the *t*-statistics for the **Employee** (H3) and **Owner** (H5) variables are negative and significant at

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[96] For a discussion of the problems associated with using the OLS estimation technique on dichotomous dependent variables and the use of probit/logit models as alternative procedures, see chapter six (section 6.2.2).

[97] The likelihood ratio statistic (χ^2) is used to test the null hypothesis that all the coefficients except the constant are simultaneously equal to zero. Under the null hypothesis, the χ^2 statistic has a Chi-square distribution with degrees of freedom equalling the number of independent variables in the model.

[98] There are different ways of computing R^2 measures for probit models. The R^2 shown is proposed by Cragg and Uhler (1970) and has a similar interpretation to that of R^2 in linear regression analysis. It is defined as {1-exp[2[L(0)-L($\hat{\beta}$)] / N]}/ {1-exp[2L(0)/N]}, where L(0) = log likelihood when all coefficients except the constant are zero, L($\hat{\beta}$) = log likelihood when the full model is fitted, and N = sample size (Cragg and Uhler, 1970, p. 400).

the 0.01 level or better. The coefficients for the **GDebt** (H_2) and **Bonus** (H_4) variables have the predicted signs, but are not statistically significant. The insignificance of these two variables is, however, consistent with the results of the univariate tests. The **Size** (H_1) variable has a statistically insignificant positive coefficient. This positive sign is inconsistent with the *t*-tests and Mann-Whitney *U* tests. Because of this, one would suspect that the relative importance of the **Size** variable might be obscured by its significant correlation with the **Employee** and **Bonus** variables. To provide evidence on this, we run a reduced model (2) by deleting the **Employee** and **Bonus** variables. Inspection of the results of this model (2) indicates that the coefficients of the **Size, GDebt** and **Owner** variables show little change in size and none in their signs, but the explanatory power measure (R^2) and goodness of fit statistic (X^2) decrease significantly. This result suggests that neither the **Size** variable nor the other explanatory variables do appear to be indicative of high multicollinearity. Consequently, we conclude that the results of the probit estimation technique confirm the findings of the univariate tests in that the foreign employees/total employees ratio and ownership concentration are the most highly associated variables with companies' choice of an accounting method for inventory.

7.2.3 Summary

The results of the univariate and multivariate tests strongly support hypotheses 3 and 5 and indicate that the **Employee** and **Owner** variables are quite important determinants in the choice of inventory methods. The results of the **Employee** variable suggest that the larger a company's foreign employees/total employees ratio, the more likely the company is to choose the average or LIFO cost method to account for inventory. These results lend support to our argument that such a company may wish to understate its earnings to avoid the potential political costs associated with the implementation of the 1995-2000 Saudi development plan. Such findings are new results in the positive accounting literature.

The results of the **Owner** variable are also consistent with reasoning that managers of owner-controlled companies are less likely to use the FIFO method, probably because they are less likely to benefit than are managers of management-controlled companies from the selection of this income-increasing accounting method. These findings are consistent with the results of Niehaus (1989) and with Dyl's (1989, p. 144) conclusion that "managers of widely held firms are more likely to select the alternative that increases reported income (FIFO) than are the managers of closely held [firms]".

The remaining variables are generally not significant at conventional levels. The insignificance of the **Size** and **Bonus** variables is, however, consistent with results in a number of prior studies which have attempted to predict the choice of inventory methods [e.g. Hagerman and Zimijewski (1979); and Tawfik and Kadous (1991)]. The relationship between the existence of Government debt and/or donations in a company's capital structure and its choice of inventory methods is not statistically significant, although the sign of the coefficient is in the hypothesised direction.

7.3 RESEARCH AND DEVELOPMENT (R&D) METHODS

The choice of research and development (R&D) method is the second accounting policy selected for investigation. Our examination of the 48 annual reports for the 1995 fiscal year revealed that 20 companies capitalised R&D costs whilst 28 companies expensed them.

7.3.1 Univariate Tests

The results of the *t*-tests, reported in Table (7.8), show that the differences in the means between the two groups of companies are in the hypothesised direction. The *t*-statistics are statistically significant beyond the one percent level for the **Size** (H_1) and **Employee** (H_3) variables, and at the one percent level for the **Owner** (H_5) variable.

Table (7.8)

Results of t-tests on the independent variables

Hypothesis & Variable *	Predicted Result	(1) Expensers Mean (ST. Deviation) n= 28	(2) Capitalisers Mean (ST. Deviation) n= 20	*t*-test** *t*	*p*
H1. Size	1 > 2	8.993 (0.56)	8.482 (0.58)	3.08	0.002
H3. Employee	1 > 2	-0.180 (0.13)	-0.466 (0.32)	3.76	0.000
H5. Owner	1 > 2	0.259 (0.33)	0.007 (0.15)	2.61	0.01

* For a description of the variables, see Table (6.3).

** The *t*-statistics shown are for the differences in means between the two groups. The *p*-values shown are for one-tailed test versus the null hypothesis.

Table (7.9)

Results of Mann-Whitney U tests on the independent variables

Hypothesis. & Variable *	Predicted Result	(1) Expensers Mean Rank n= 28	(2) Capitalisers Mean Rank n= 20	*U*-test *Z Score*	*p***
H1. Size	1 > 2	28.93	18.30	-2.599	0.005
H3. Employee	1 > 2	30.04	16.75	-3.243	0.000
H5. Owner	1 > 2	28.96	18.25	-2.614	0.005

* For a description of the hypotheses and variables, see Table (6.3).

** The *p*-values shown are for one-tailed test versus the null hypothesis.

Because one would suspect that the normality assumption which underlies the *t*-test is violated, the Mann-Whitney *U* test is performed to determine if companies which expense and capitalise R&D costs are drawn

from the same population. Inspection of the *Z*-scores and their signs reported in Table (7.9) indicates that the results of the Mann-Whitney *U* tests are consistent with the results of the *t*-tests in that all the variables have the hypothesised signs and are highly statistically significant.

Table (7.10)

Results of median tests on the independent variables

		Accounting Methods		
		Expensers	**Capitalisers**	**Total**
Size	< Grand Median	18	6	24
	≥ Grand Median	10	14	24
		28	20	48
Chi-square =5.49**				
Employee	< Grand Median	19	5	24
	≥ Grand Median	9	15	24
		28	20	48
Chi-square =8.57*				
Owner	< Grand Median	19	5	24
	≥ Grand Median	9	15	24
		28	20	48
Chi-square =8.57*				

* Significant at .01, one-tail test.
* *Significant at .02, one-tail test.

The results of the nonparametric median tests reported in Table (7.10) generally lend support to both the *t*-tests and Mann-Whitney *U* tests and confirm the strong relationship between a company's size, foreign

employees/total employees ratio, and ownership concentration and its choice of accounting research and development procedures.

Table (7.11)

Contingency table relating methods of accounting for R&D costs to the presence of Government debt and/or donations and a bonus plan.

		Accounting Methods		
		Expensers	**Capitalisers**	**Total**
GDebt	YES	13	7	20
	NO	15	13	28
		28	20	48
Chi-square =0.627				
Bonus	YES	18	9	27
	NO	10	11	21
		28	20	48
Chi-square =1.763				

To test the relationship between the presence of Government debt and/or donations (**GDebt**) in a company's capital structure and the existence of incentive compensation plans tied to reported earnings (**Bonus**) and the method chosen for research and development, a 2*2 contingency table is constructed for each variable. The results are reported in Table (7.11). The X^2 statistics for the **GDebt** (H2) and **Bonus** (H4) variables are 0.627 and 1.763, respectively, which are not significant at conventional levels. These results suggest that the presence of Government debt and/or donations and a

bonus plan and the accounting method chosen for research and development expenditure, are unrelated.

7.3.2 Multivariate Tests

Because the OLS and logit estimation procedures yielded similar results to those based on the probit technique, only the probit results are reported and discussed here. Setting the dependent variable to one for the capitalising method and zero for the expensing method, the following probit regression is estimated:

$$\textbf{Probit}\,(P) = \alpha + \beta_1\,\textbf{Size} + \beta_2\,\textbf{GDebt} + \beta_3\,\textbf{Employee} + \beta_4\,\textbf{Bonus} + \beta_5\,\textbf{Owner},$$

where P is the probability that the dependent variable equals one. The **Size, GDebt, Employee, Bonus,** and **Owner** variables and their predicated signs are as previously defined in Table (6.3).

The X^2 value of 27.71 reported in Table (7.12) indicates the null hypothesis, that all the coefficients of the independent variables are simultaneously equal to zero, is rejected at the 0.001 level. The model's explanatory power (R^2) is 59%. The signs of all the coefficients are as predicted. The regression coefficient for the **Employee** (H3) variable is significant at the 0.01 level, while the coefficients for the **Size** (H1) and **Owner** (H5) variables are statistically significant at the 0.05 level. The

GDebt (H2) variable has an insignificant, though negative coefficient, while the **Bonus** (H4) variable has an insignificant positive coefficient. In summary, the results of the probit technique confirm the findings of the univariate tests, and both univariate and multivariate results give support to our argument that there is a significant relationship between a Saudi company's choice of accounting method for R&D expenditure and its size, foreign employees/total employees ratio, and ownership concentration.

Table (7.12)

Probit analysis of the relation between the five political and contracting cost variables, and the R&D policies.

Technique	Explanatory variables Coefficients (*t*-statistics) *p*-values*							
	Size -	**GDebt** -	**Employee** -	**Bonus** +	**Owner** -	**Constant**	R^{2} **	X^{2} ***
PROBIT	-1.152 (-1.92) 0.05	-0.417 (-0.85)	-2.865 (-2.49) 0.01	0.037 (0.07)	-3.519 (-1.95) 0.05	9.610 (1.85) 0.05	0.59	27.71 0.001

* The p-values shown are for one-tailed test versus the null hypothesis.

** The R^{2} shown is proposed by Cragg and Uhler (1970) and has a similar interpretation to that of R^{2} in linear regression analysis.

*** X^{2} is the likelihood ratio statistic and tests the null hypothesis that all coefficients except the intercept are simultaneously equal to zero. It possesses an asymptotic Chi-square distribution with degrees of freedom equal to the number of explanatory variables.

7.3.3 Summary

Both univariate and multivariate tests provide three major results supporting hypotheses 1, 3, and 5. Consistent with earlier work by Daley and Vigeland (1983), the first result suggests that managers of large companies tend to expense, rather than capitalise, their R&D costs. Daley and Vigeland (p. 197)'s results support the belief that if North American firms capitalise their R&D costs and hence "report higher income, regulators will be more likely to place tighter constraints on such firms' operations". Our findings support the notion that managers of large Saudi companies tend to expense their R&D costs in order to minimise the impact of the 1995-2000 Saudi development plan and thus reduce the effect of the 1995-2000 plan's wealth redistribution away from companies and the salaries and emoluments their managers receive.

The second result suggests that Saudi companies with higher ratios of foreign employees to total employees are more likely to expense their R&D costs. This result is consistent with our argument that managers of Saudi companies with this characteristic wish to understate their reported earnings to avoid incurring the potential political costs associated with the implementation of the 1995-2000 development plan. This result introduces a new environment-oriented variable into the positive accounting literature.

Our results also support the hypothesis that managers of owner-controlled companies are less likely to capitalise R&D costs. This finding[99] introduces the important effect of ownership control status of companies on the choice of accounting research and development methods.

Finally, the results of both univariate and multivariate tests lend no support for hypotheses 2 and 4, which predict that the presence of Government debt and/or donations and a bonus plan are significant determinants of research and development expenditure accounting policies. Our results of the bonus hypothesis are, however, consistent with results in a number of prior studies with respect to the relationship between accounting policy choice and the existence of a bonus plan (see Watts and Zimmerman 1986, p.260).

7.4 ZAKAT METHODS

The choice of Zakat policy is selected for investigation as the third accounting choice variable. In chapter six (section 6.1.2.3) we noted that the Ministerial Decree No 104 requires Saudi joint stock companies to charge Zakat to the profit and loss account as an expense rather than to the retained

[99] **Note that we are not aware of any research that has reported empirical evidence about the effect of ownership structure on the choice of an accounting policy for research and development expenditures.**

earnings account. We have examined the 48 financial reports for the fiscal year 1995 and found that 32 companies treated Zakat as an expense, while, contrary to the requirements of the Ministerial Decree No 104, 16 companies charged Zakat to the retained earnings account. Because the decision to treat Zakat as an income distribution rather than as an expense increases the current period's reported income, we treat distributing Zakat as an income-increasing accounting method and expensing the Zakat as an income-decreasing method.

7.4.1 Univariate Tests

Table (7.13) presents the results of the *t*-tests and indicates that the differences in the means between the two groups of companies are as hypothesised. The *t*-statistics are significant beyond 0.01 level for the **Size** (H_1) and **Employee** (H_3) variables, and at the 0.025 level for the **Owner** (H_5) variable.

The results of the Mann-Whitney *U* tests reported in Table (7.14) confirm the findings of the *t*-tests and show that the Z-scores for all the variables have the predicted signs and are statistically significant beyond the 0.025 level.

Table (7.13)

Results of t-tests on the independent variables

Hypothesis & Variable *	Predicted Result	(1) Expensers Mean (ST. Deviation) n= 32	(2) Distributors Mean (ST. Deviation) n= 16	*t*-test** *t*	*p*
H1. Size	1 > 2	8.943 (0.54)	8.454 (0.65)	2.77	0.005
H3. Employee	1 > 2	-0.194 (0.15)	-0.510 (0.32)	3.71	0.000
H5. Owner	1 > 2	0.231 (0.32)	0.008 (0.17)	2.14	0.025

* For a description of the variables, see Table (6.3).

** The *t*-statistics shown are for the differences in means between the two groups. The *p*-values shown are for one-tailed test versus the null hypothesis.

Table (7.14)

Results of Mann-Whitney U tests on the independent variables

Hypothesis. & Variable *	Predicted Result	(1) Expensers Mean Rank n= 32	(2) Distributors Mean Rank n= 16	*U*-test *Z Score*	*p***
H1. Size	1 > 2	27.44	18.63	-2.056	0.02
H3. Employee	1 > 2	29.53	14.44	-3.522	0.000
H5. Owner	1 > 2	27.28	18.94	-1.946	0.025

* For a description of the hypotheses and variables, see Table (6.3).

** The *p*-values shown are for one-tailed test versus the null hypothesis.

Table (7.15) presents the results of the median tests. The χ^2 statistics for the variables **Employee** (H3) and **Owner** (H5) lend support to both the *t*-

tests and the Mann-Whitney *U* tests and confirm the significant relationship between a company's foreign employees/total employees ratio and ownership structure and its choice of Zakat accounting policies. The X^2 statistic for the **Size** (H1) variable is also significant, but at the ten percent level.

Table (7.15)

Results of median tests on the independent variables

		Accounting Methods		
		Expensers	**Distributors**	**Total**
Size	< Grand Median	19	5	24
	≥ Grand Median	13	11	24
		32	16	48
Chi-square =3.38**				
Employee	< Grand Median	20	4	24
	≥ Grand Median	12	12	24
		32	16	48
Chi-square =6.00*				
Owner	< Grand Median	20	4	24
	≥ Grand Median	12	12	24
		32	16	48
Chi-square =6.00*				

* Significant at .02, one-tail test.
* *Significant at .10, one-tail test.

Table (7.16) presents the results of the Chi-square tests of the **GDebt** (H2) and **Bonus** (H4) variables. The X^2 statistics shown are not significant

at conventional levels, suggesting that the presence of Government debt and/or donations on the balance sheet and management compensation plans tied to reported earnings, do not affect the choice of Zakat methods.

Table (7.16)

Contingency Table relating methods of accounting for Zakat to the presence of Government debt and/or donations and a bonus plan.

		Accounting Methods		
		Expensers	**Distributors**	**Total**
GDebt	YES	16	6	22
	NO	16	10	26
		32	16	48
Chi-square =0.671				
Bonus	YES	19	7	26
	NO	13	9	22
		32	16	48
Chi-square =1.049				

7.4.2 Multivariate Tests

To simultaneously test the significance of the five independent variables, the following cross-sectional regression is estimated using the OLS, probit and logit procedures:

$$\mathbf{Y}_i = \alpha + \beta_1 \mathbf{Size}_i + \beta_2 \mathbf{GDebt}_i + \beta_3 \mathbf{Employee}_i + \beta_4 \mathbf{Bonus}_i + \beta_5 \mathbf{Owner}_i ,$$

where $Y_i = 1$ if the i^{th} company charged the Zakat to retained earnings

account, and 0 if the i^{th} company treated the Zakat as an expense. The explanatory variables and their predicated signs are as previously defined in Table (6.3). Because the probit and logit estimation procedures yielded almost identical significance levels, and because the results of the OLS technique were found to be different from those based on the probit and logit models, only the OLS and probit results are reported and discussed.

The results of the OLS estimation technique reported in Table (7.17) seem to be consistent with the results of the univariate tests. Furthermore, the p value of the computed Jarque-Bera χ^2 statistic in the OLS model is found to be about 20%, which implies that, asymptotically, the disturbance terms are normally distributed. This suggests that the OLS procedure gives a reasonable fit to our data base. However, our investigation of the estimators of $E(Y_i)$, $\hat{Y}_i$, indicates that nine estimated values are less than 0 (negative) and seven values are in excess of one, implying that the OLS estimation model does not fulfil the 0-1 restriction. Because of this problem, the OLS estimation procedure results must be treated with caution and we therefore rely on the findings of the probit model alone.

Table (7.17)

OLS and Probit analyses of the relation between the five political and contracting cost variables, and the Zakat policies.

Technique	Explanatory variables Coefficients (*t*-statistics) *p*-values*							
	Size -	**Gdebt** -	**Employee** -	**Bonus** +	**Owner** -	**Constant**	R^{2} ** ($\bar{R}^{2}$)	X^{2} *** (*F*)
OLS*	-0.163 (-1.83) 0.05	0.002 (0.02)	-0.818 (-4.37) 0.000	-0.053 (-0.51)	-0.309 (-2.39) 0.01	1.607 (1.90) 0.05	(0.32)	(5.47) 0.001
PROBIT	-0.825 (-1.51) 0.10	-0.165 (-0.34)	-2.823 (-2.75) 0.005	-0.055 (-0.10)	-2.315 (-1.44) 0.10	6.250 (1.32) 0.10	0.53	22.79 0.001

* The p-values shown are for one-tailed test versus the null hypothesis. Note that the variance of the disturbance terms produced by the OLS technique is found to be heteroskedastic. However, the econometric software package used in this study, SHAZAM, automatically corrects for this problem using White's correction procedures.

** The R^{2} shown is proposed by Cragg and Uhler (1970) and has a similar interpretation to that of R^{2} in linear regression analysis.

*** X^{2} is the likelihood ratio statistic and tests the null hypothesis that all coefficients except the intercept are simultaneously equal to zero. It possesses an asymptotic Chi-square distribution with degrees of freedom equal to the number of explanatory variables.

The results of the probit procedure reported in Table (7.17) are generally consistent with the univariate tests in that the **Size** (H_1), **Employee** (H_3), and **Owner** (H_5) variables have statistically significant negative coefficients. Furthermore, whilst the coefficients for the **Size** (H_1) and **Owner** (H_5) variables are less significant than in the univariate tests, they are still significant at conventional levels and have the correct signs.

The **GDebt** (H2) variable has an insignificant negative coefficient, while the coefficient for the **Bonus** (H4) variable is insignificant and has the opposite sign to that predicted. The model's goodness of fit statistic is significant with a *p* value of 0.001 and its explanatory power measure (R^2) is 53%.

7.4.3 Summary

The results of the two sets of tests (univariate and multivariate) generally support hypotheses 1, 3, and 5. Hypotheses 1 and 5 are supported moderately to strongly. The univariate results strongly support the **Size** (H1) and **Owner** (H5) variables, while the multivariate tests provide at least moderate support for these variables. Taken together, the results provide empirical support for the hypothesis that managers of Saudi companies which have large assets and higher insider ownership, tend to charge Zakat to the profit and loss account rather than to the retained earnings account. Hypothesis 3, which predicts that the larger a company's foreign employees/total employees ratio, the more likely the company is to expense Zakat, is strongly supported by both the univariate and multivariate tests.

These findings provide two extensions to previous research. First, contrary to the earlier Saudi study conducted by Tawfik and Kadous (1991), our findings show that the **Size** variable is a significant determinant of Zakat policies; large Saudi companies would be in danger of suffering political

costs during the 1995-2000 period, and hence managers of these companies will have incentives to expense Zakat. Second, the findings relating to the **Employee** (H_3) and **Owner** (H_5) variables introduce new results into the positive accounting literature and extend the importance of these variables to the choice of Zakat policies.

Finally, the results of both the univariate and multivariate tests provide no evidence to support hypotheses 2 and 4 which predict that managers of Saudi companies with Government debts and/or donations and incentive compensation plans are more likely to expense the annual Zakat.

7.5 SUMMARY AND CONCLUSION

In chapter five we hypothesised that managers of Saudi companies which have: (1) large total assets, (2) Government debts and/or donations, (3) higher ratios of foreign employees to total employees, (4) no management compensation plans tied to reported profits, and (5) higher insider ownership, are more likely to use income-decreasing accounting policies. In this chapter we empirically examined the ability of these five firm-specific variables to explain and predict the cross-sectional variation in each of the following three accounting policies: (1) inventory methods, (2) research and development methods, and (3) Zakat methods. These three methods are selected because they have a significant effect on reported

income and were exhaustively disclosed in the 1995 annual reports of Saudi companies. Furthermore, they vary significantly across the companies in our sample and so there is sufficient variation to apply some standard univariate and multivariate statistical tests. We treated FIFO, the capitalisation of research and development expenditure, and distributing of the annual Zakat as income-increasing accounting policies. Weighted average/LIFO for inventory and the expensing methods for research and development and Zakat were treated as income-decreasing accounting policies.

Table (7.18) summarises the results of the univariate and multivariate tests and denotes whether the evidence is consistent or inconsistent with each of the five hypotheses.

Table (7.18)

A summary of univariate and multivariate results of the relation between the five political and contracting cost variables, and three accounting policies

Technique	Explanatory variables *p*-values						
	Size	**Gdebt**	**Employee**	**Bonus**	**Owner**	X^2	R^2
(1) Inventory Method							
t-test	NS	-	0.000	-	0.000		
U-test	NS	-	0.000	-	0.005		
Chi-square test	NS	NS	0.01	NS	0.01		
Probit Model (1)	NS*	NS	0.005	NS	0.01	0.001	0.74
Probit Model (2)	NS*	NS			0.05	0.01	0.34
(2) R&D Method							
t-test	0.002	-	0.000	-	0.01		
U-test	0.005	-	0.000	-	0.005		
Chi-square test	0.02	NS	0.01	NS	0.01		

Probit Model	0.05	NS	0.01	NS	0.05	0.001	0.59
(3) Zakat Method							
t-test	0.005	-	0.000	-	0.025		
U-test	0.02	-	0.000	-	0.025		
Chi-square test	0.10	NS	0.02	NS	0.02		
Probit Model	0.10	NS	0.005	NS*	0.10	0.001	0.53

Notes:

1. The decimals reflect the levels of significance.
2. NS signifies not significant, but sign in predicted direction.
3. NS* signifies not significant and sign not in predicted direction.

The conclusions we reach from the empirical analysis reported in this chapter can be summarised in terms of seven basic points:

1. Our results are consistent with the hypothesis that a company's foreign employees/total employees ratio and ownership structure affect its accounting policy choices. Since these two variables (**Employee** and **Owner**) do affect the choice of accounting policies on a consistent basis, these two factors are the most powerful explanatory variables.
2. The results of the univariate and multivariate tests of the **Size** hypothesis are less consistent than are tests of the **Employee** and **Owner** hypotheses. However, since the **Size** variable is a significant determinant of two out of three accounting policies (research and development and the Zakat methods), the preponderance of tests confirms the predicted role of the **Size** variable and suggests that managers of Saudi companies with large total assets choose accounting procedures that reduce current reported earnings.

3. All the univariate and multivariate tests used to examine the **GDebt** hypothesis show that the existence of Government debt and donations in a company' s capital structure does not affect the company's choice of accounting policies. This may be explained by the fact that the use of a zero-one variable (rather than a continuous variable such as the proportion of Government debt and/or donations to a company's funds employed) may be simplistic because it does not distinguish sufficiently between Saudi companies which will incur relatively large political costs and companies which will bear relatively lower political costs. However, although the dichotomous **GDebt** variable may not be a good proxy for Saudi companies' political visibility, the consistency of the signs of its coefficients in our regression equations gives some support for our argument that Saudi companies which are used to relying on extensive Government support and financial contributions will incur relatively larger political costs than other companies, and hence their managers will have incentives to use income-decreasing accounting policies. It also confirms the political effects of the 1995-2000 Saudi development plan on accounting policy choices.

4. Consistent with a number of earlier positive accounting choice studies, our research's overall results lend no support to the **Bonus** hypothesis,

which predicts a positive relationship between the presence of a management compensation plan tied to reported corporate earnings and the use of income-increasing accounting policies. This lack of significant association may be due to several reasons. First, the use of a dichotomous variable to measure a management compensation plan's effects may be simplistic (Watts and Zimmerman, 1990). Second, costs of contract renegotiations may be low. This leads to the third reason, that the compensation committees who typically administer management compensation plans may adjust the incentive pay for changes in accounting policies (Ball and Foster, 1982). Fourth, because details about management compensation plans are unknown, (1) the plans may specify the accounting policy set *ex-ante*, (2) current period reported earnings may be below or above the target earnings set by the incentive plans (Healy, 1985), and (3) the compensation plans may include different types of remuneration, and managers may perceive trade-offs among these types of remuneration according to the ultimate effect an accounting policy could have on their wealth (Hunt, 1985).

5. Given 1 and 2, the study's overall results suggest that managers of Saudi companies do use economic criteria in choosing their accounting procedures. In other words, our findings provide empirical support for the

principal hypothesis of this dissertation that accounting standards which exist in Saudi Arabia give rise to economic consequences and managers of companies consider these consequences when selecting accounting policies.

6. This study improves upon past research in the area in several ways. First, its hypotheses are based on the costly-contracting and political framework; thus, the empirical evidence not only addresses whether accounting standards which exist in Saudi Arabia give rise to economic consequences, but also addresses the issue of the applicability of the positive accounting theory's implications to Saudi Arabia. It also sheds some light on the factors that are most likely to influence a manager's accounting policy choices. Second, following suggestions by Watts and Zimmerman (1986, p. 256), it introduces a "sophisticated political cost measure" (**Employee**) which "is more refined than size". Third, compared to the previous studies of accounting policy choice reviewed in chapter four, this study provides more powerful tests of the positive accounting theory because it: (1) develops an explicit link between the political process (the politicisation of the 1995-2000 Saudi development plan) and its effect on the accounting policy choices, and (2) identifies the forms in which wealth transfers take place and includes them in the analysis.

Finally, this research extends the important effect of ownership control status of companies to the choice of accounting research and development methods and Zakat methods

7. Like many positive accounting studies, a limitation of our study may be the endogeneity of the independent variables (Watts and Zimmerman, 1990). This suspicion is only increased when one considers the fact that the intercepts of the probit models have relatively high coefficient values. If the endogeneity problem is present in our study, the empirical evidence generated could be due partly to reasons other than those hypothesised. However, this concern may not be as critical as it appears since this study shows a high degree of consistency of results across models and between the univariate and multivariate tests.

CHAPTER EIGHT:

SUMMARY, CONCLUSIONS AND IMPLICATIONS

8.0 INTRODUCTION

This chapter provides a review of the entire thesis. The first section summarises the theoretical and empirical foundations of the study. The second section outlines the study hypotheses, assumptions, and methodology. This section also presents conclusions on the study's major findings, contributions to knowledge, and limitations. The last section suggests areas for future research.

8.1 BACKGROUND OF THE STUDY

An accounting policymaking body must develop alternative standards and procedures for its constituents. Some accounting researchers believe that the primary concern of policy makers should be to set accounting standards that improve the decision relevance and reliability of the reported information for financial statement users. Others reject this decision-usefulness approach in favour of a political and economic consequences perspective.

Proponents of the economic consequences perspective generally use empirical evidence to justify their assertions. For example, some empirical researchers have demonstrated that the SFAS Nos. 2, 5, 8, and 19 could impede national goals. Others have provided empirical evidence that SFAS Nos. 19, 25, and 33 could reduce capital market efficiency. The strongest

empirical evidence consistent with the adverse economic consequences of accounting standards is, however, developed by researchers who have examined such issues as to why managers of companies adopt certain accounting procedures and why they lobby for or against certain accounting policies. Results from this research have generally indicated that managers do so because of the impact of reported financial accounting information on the users' decision-making behaviour and on companies' contractual relationships. The philosophy underlying this type of economic consequences research is based on the assumption that corporate managers will use (or lobby for) accounting policies which best serve their self-interest. Based on this assumption arguments are generated from what Watts and Zimmerman (1986) call the political and contracting processes. From the former it is argued that if a company is politically sensitive, its managers have incentives to use income-decreasing accounting policies in order to reduce that political sensitivity and hence, the probability of suffering negative wealth transfers (political costs). Similarly, it is argued that if a company is subject to price and cost regulations, its managers have incentives to use income-decreasing accounting policies in order to minimise the impact of these regulations on its future cash inflows.

Positive accounting researchers also argue that the terms of debt

contracts provide incentives for managers to adopt income-increasing accounting policies. It is argued that the higher the debt/equity ratio the more likely it is that managers will use income-increasing accounting policies in order to reduce the probability of violating restrictive covenants in such contracts. Similarly, it is argued that the terms of management compensation plan contracts provide incentives for managers to adopt income-increasing accounting policies. It is argued that if a company uses management compensation plans, its managers have incentives to adopt income-increasing accounting policies in order to increase the bonus payments they receive. It is also argued that manager-controlled companies are more likely to operate management compensation plans and hence their managers are more likely to adopt income-increasing accounting policies.

8.2 SUMMARY AND CONCLUSIONS

This study documents empirical evidence of the economic consequences of accounting standards which exist in Saudi Arabia and of the relation between firm specific characteristics and accounting policy choices.

8.2.1 Research Hypotheses and Assumptions

Using the political process theory, three hypotheses were generated for empirical testing:

1. *The size hypothesis*. We argue that the political costs Saudi companies bear are a function of their total assets. Based on this argument and following the size hypothesis proposed by Watts and Zimmerman (1978), we hypothesised that managers of Saudi companies are more likely to adopt income-decreasing accounting policies the larger the company's total assets.

2. Watts and Zimmerman (1990, p. 144) describe company size as a noisy proxy for political costs and call for "more direct measures of political sensitivity than firm size" because such measures would "provide more powerful tests of the political cost hypothesis". Following this suggestion, we developed two new political cost hypotheses. These are environment-oriented hypotheses and predict that managers of Saudi companies are more likely to adopt income-decreasing accounting policies: (1) if the company's capital structure contains Government debt and/or donations (*the GDebt hypothesis*), and/or (2) the higher the company's ratio of foreign employees to total employees (*the employee hypothesis*).

Using the contracting process theory, two other hypotheses were also developed and tested:

1. *The bonus plan hypothesis*. Like USA companies, a large number of Saudi joint stock companies operate management compensation plans. This motivated us to hypothesise that managers of Saudi companies with bonus plans are more likely to use income-increasing accounting policies.
2. *The owner hypothesis*. Based on the work of Dhaliwal, Salamon and Smith (1982), we hypothesised that managers of Saudi companies are more likely to use income-increasing accounting policies the lower the percentage of stock owned by the company's directors.

As is the case with accounting research in general and with economic consequences research in particular, our hypotheses are based on a number of interrelated assumptions. Underlying the political cost hypotheses is the explicit assumption that some of the strategic economic goals of the 1995-2000 Saudi development plan encompass unfavourable wealth transfers and Saudi companies' political visibility varies with their reported earnings. It is also assumed that Saudi Government bureaucrats who administer the 1995-2000 development plan, will not adjust for changes in managers' accounting policy choices unless the benefits exceed the costs of doing so. An implicit assumption is also invoked to develop the bonus plan hypothesis. We

assume that management compensation plans used by Saudi companies do not specify the accounting policy set *ex-ante* and that members of the compensation committees who administer such plans do not adjust, *ex-post*, for changes in accounting policies. Finally, we assume that managers of Saudi companies trade-off the expected impact of the economic influences of political costs and compensation when selecting an accounting policy.

8.2.2 Research Methodology and Results

The sample used consists of 48 Saudi joint stock companies which were listed on the Saudi stock market at the end of 1995. Three voluntary accounting policy choices were selected for investigation:

1. Inventory valuation methods (Average/LIFO vs. FIFO).
2. Research and Development methods (capitalising vs. expensing).
3. Zakat methods (distributing vs. expensing).

The research methodology adopted consists of two phases involving two kinds of tests; univariate tests, and multivariate tests. The univariate tests (*t* tests, Mann-Whitney *U* tests, and Median tests) strongly support *the employee hypothesis* and *the owner hypothesis*. They reject the null hypothesis that the ratio of foreign employees to total employees and accounting methods are unrelated at the 0.01 level or better for inventory and research and development and at the 0.02 level or better for the Zakat

methods. The three univariate tests also reject the null hypothesis that the percentage of stock owned by a company's directors and accounting methods are independent at the 0.01 level or better for inventory and research and development and at the 0.025 level or better for the Zakat methods. The univariate tests on the company size variable are not significant for every model. While we found no association between a company's total assets and the method chosen for inventory, the *t* tests, Mann-Whitney *U* tests, and Median tests reject the null hypothesis that a company's total assets and accounting methods are unrelated at the 0.02 level or better for research and development and at the 0.10 level or better for the Zakat methods. To that extent, the univariate test results support *the size hypothesis*. Finally, applying the Chi-square tests to examine the consistency of *the GDebt hypothesis* and *the bonus plan hypothesis*, our results lend no support for these two hypotheses.

We used the five political and contracting cost variables- the total assets, the presence of Government debt and/or donations, the ratio of foreign employees to total employees, the existence of a bonus plan, and the percentage of stock owned by directors of a company- in a Probit analysis to predict the choice of inventory, research and development, and Zakat accounting policies employed by Saudi companies. The results confirm the

findings of the univariate tests in that the foreign employees/total employees ratio and ownership concentration are the most powerful explanatory variables, and that company size is a significant determinant of research and development methods and Zakat methods but not of the inventory method used. They also confirm the weak association between the presence of Government debt and/or donations and the existence of a bonus plan and the choice of accounting methods. However, the results show a high degree of consistency of the signs of the presence of Government debt and/or donations dummy variable, suggesting that this company characteristic makes managers more likely to prefer income-decreasing accounting policies and that its lack of significance could be induced by a failure to use a continuous variable rather than a zero-one variable. Finally, the X^2 likelihood ratio tests result in rejection of the null hypothesis that the model cannot predict the choice of accounting methods at the 0.01 level or better for inventory and at the 0.001 level for the research and development and Zakat methods.

In summary, our results confirm the consistency of *the size hypothesis*, *the employee hypothesis*, and *the owner hypothesis*. Table (8.1) provides a summary of the five hypotheses tested in this study and indicates whether the evidence is consistent or inconsistent with each hypothesis.

Table (8.1)

Summary of hypotheses tested

Hypotheses	Inventory Methods	R&D Methods	Zakat Methods
1) Political cost hypotheses:			
H1: Ceteris paribus, the larger a company' s size, the more likely the company's managers are to choose accounting policies that decrease current reported earnings.	Inconsistent	Consistent	Consistent
H2: Ceteris paribus, managers of companies with Government debt and/or donations are more likely to select accounting policies that decrease current reported earnings.	Inconsistent	Inconsistent	Inconsistent
H3: Ceteris paribus, the larger a company' s foreign employees/total employees ratio, the more likely the company's managers are to use accounting policies that decrease current reported earnings	Consistent	Consistent	Consistent
(2) Contracting cost hypotheses:			
H4: Ceteris paribus, managers of companies with a bonus plan are more likely to choose accounting policies that increase current reported earnings.	Inconsistent	Inconsistent	Inconsistent
H5: Ceteris paribus, managers of companies with a lower percentage of stock owned by directors are more likely to select accounting policies that increase current reported earnings.	Consistent	Consistent	Consistent

8.2.3 Implications for the Accounting Profession In Saudi Arabia

Very little empirical research has been conducted in Saudi Arabia on the positive accounting theory. This may be because of:

- The lack of generally accepted accounting principles and rules; and
- the lack of easy access to financial information for researchers.

However, circumstances have changed over the last fifteen years, or more precisely, since the issue of the 1986 Ministerial decision. This decision has established a conceptual framework for financial accounting and reporting in Saudi Arabia and set detailed disclosure requirements for Saudi companies. The most important change has resulted from the establishment of the Saudi Organisation for Certified Public Accountants (SOCPA). Under SOCPA's Decision No. 4/2/3 dated 15/5/1414 A.H. (1993) Saudi companies are required to use USA Generally Accepted Accounting Principles (GAAP) until SOCPA creates its own standards. In 1994, SOCPA issued its first standard; "Quality Control Standard for the Certified Public Accountants Firms". In 1997, SOCPA also issued six standards; (1) Foreign Currency Translation, (2) Inventories, (3) Cash Flow Statements, (4) Related Party Disclosures, (5) Preliminary & Pre-operating Expenses,. and (6) Auditing Electronic Data Processing (EDP) Activities. Whilst legislation has not yet provided extensive databases about Saudi

companies, a series of annual accounts are now computerised by SOCPA and available in public form.

All these recent changes provide a new framework for accounting researchers. They have encouraged us to carry out this empirical research with the primary objective of promoting the accounting profession in Saudi Arabia. The research's overall results show that our political and contracting cost hypotheses are able to explain and predict some accounting policies used by managers of Saudi companies. Managers of companies with large total assets, a high ratio of foreign employees to total employees, and high insider ownership are more likely to use income-decreasing accounting policies. These findings provide empirical support for the principal hypothesis of this dissertation. That is, accounting standards which exist in Saudi Arabia give rise to economic consequences and managers of companies consider these consequences when selecting accounting policies. In summary, the conclusion we have reached from this study is that accounting policy decisions have important implications for the attainment of national goals and contractual relationships. This principal conclusion is of critical importance to the Saudi Organisation for Certified Public Accountants (SOCPA), given that accounting standard setting processes are still in their early stages of development. It supports the view that the Saudi

Organization for Certified Public Accountants (SOCPA) should acknowledge the possible adverse economic consequences that may result from its accounting standards decisions. In fact, the results of this study justify, in the very least, a wider and more detailed study by SOCPA of the economic effects of its potential accounting standards. The findings may also call into question the financial accounting standards which have recently been promulgated.

8.2.4 Contributions to Knowledge

Although we feel that the force of the empirical evidence in favour of the economic consequences hypothesis is substantial, this conclusion is perhaps not the only important implication of this research. The findings of this study provide several methodological improvements over previous positive accounting research. First, they provide empirical support for applying the positive accounting theory to less developed countries such as Saudi Arabia. Second, they emphasise the importance of developing an explicit link between the political process and its effect on the choice of accounting procedures. This importance is clearly reflected by the powerful explanation of the foreign employees/total employees ratio variable. Third, they show that total assets, the ratio of foreign employees to total employees, and insider ownership are the most important factors that

influence accounting policy choices in Saudi Arabia. Finally, this study is the first economic consequences study to show that the ownership control status of companies is a significant determinant of research and development and Zakat accounting policies.

8.2.5. Research Limitations

Most economic consequences studies, including ours, use econometric models to explain and predict variation in managers' accounting policy choice behaviour. Therefore, empirical evidence generated from these studies may be limited by the traditional econometric problems related to measurement errors and omitted variables[100]. To mitigate the potential adverse effects of these problems on our empirical results, we developed an explicit linkage between the political and contractual processes in Saudi Arabia and their potential effects on managers' accounting policy choices. We then identified the forms in which wealth redistribution takes place and included them in our econometric models. This may reflect the high degree of consistency of results across models and between the univariate and multivariate testes adopted in our empirical testing procedures. In fact, even

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[100] Note that such limitations are frequently discussed and hence they need no special references here [A useful discussion of these limitations is to be found in Holthausen and Leftwich (1983, pp. 100-109); and in Watts and Zimmerman (1990, pp. 140-146)].

if our results do appear to be seriously affected by measurement errors and/or omitted variables problems, one would anticipate such limitations since this study is the first economic consequences study to adopt an in-depth empirical research in the Saudi Arabian context.

Two important observations should also be noted here. One is that the sample used consisted of Saudi joint stock companies operating in the agriculture, industrial and services sectors, and hence our results may not be generalised to other business sectors and/or other environments. The second limitation is that the political cost hypotheses in this study are based on the politically sensitive effect of the 1995-2000 Saudi development plan. Thus, evidence on the consistency of these hypotheses is limited to the Saudi Arabian environment and to the 1995-2000 period.

8.3 SUGGESTIONS FOR FUTURE RESEARCH

Even though this study provides numerous improvements over previous related work, many research opportunities and unresolved questions remain:

1. Future research could help in understanding why the presence of the Government debt and/or donations variable (**GDebt**) is insignificant although the signs of its coefficients are as predicted in all models tested; is it because of the use of a zero-one variable rather than a continuous

variable or because it captures an omitted variable effect? Future research could also help in understanding why we obtained different findings for the bonus plan variable from those generally documented in the positive accounting literature; is it because of "[our] failure to investigate the details of individual compensation plans" (Watts and Zimmerman, 1986, p. 280)?

2. The relation between firm specific characteristics and variations in the firm's abnormal returns around the announcement of the new five financial accounting standards- Foreign Currency Translation, Inventories, Cash Flow Statements, Related Party Disclosures, and Preliminary & Pre-operating Expenses- is a broad area for future research. One could explore whether equity price reaction to an accounting standard, if there is any, is related to its reported earnings effects and potential economic consequences, or to its increase/decrease of the acceptable set of accounting policies.
3. Research to explore how economic consequences of accounting standards can be incorporated into the process of setting or choosing standards is also a broad topic for future research.

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